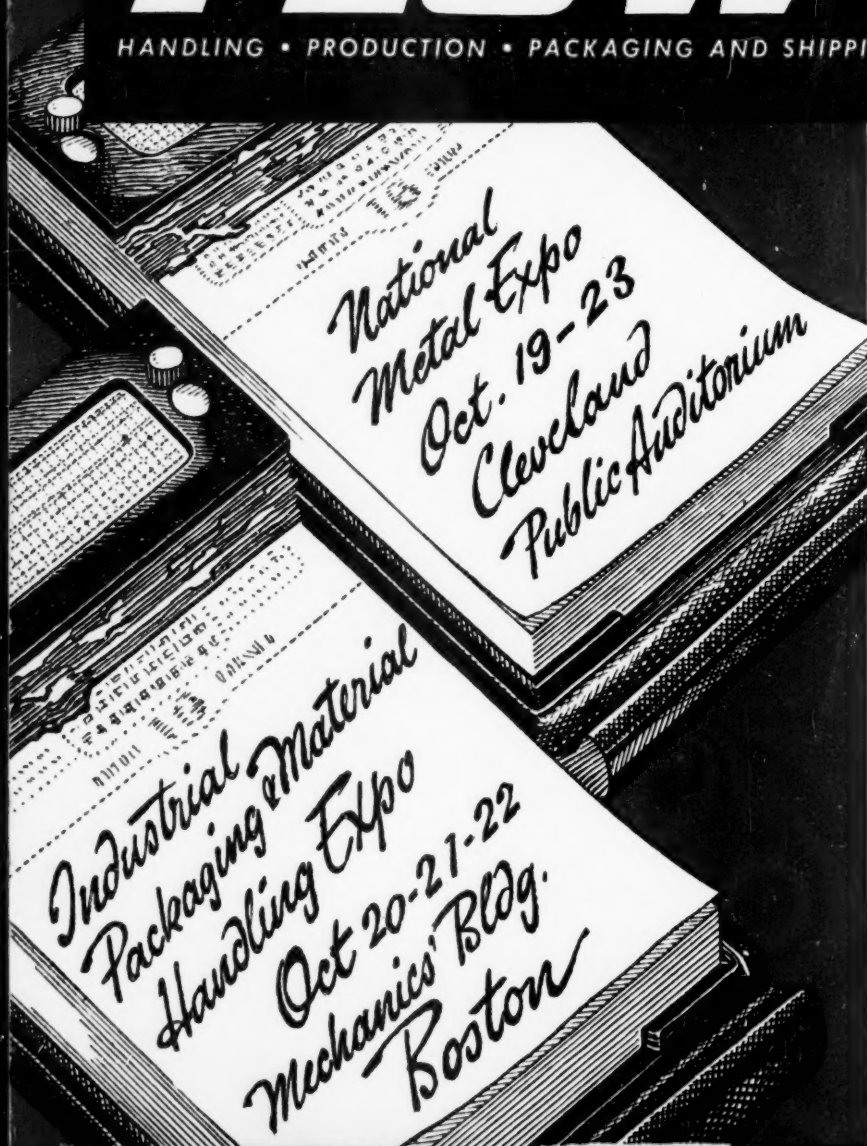


MATERIAL FLOW

HANDLING • PRODUCTION • PACKAGING AND SHIPPING

OCTOBER 1953

AN IRVING
PUBLICATION



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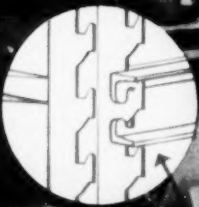
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**YOU NEED FEWER
RACKS WHEN
YOU USE...**

**THE TRULY ADJUSTABLE
Pallet Rack**
with the
BOLTLESS SHELF
Patented in U. S. and Foreign Countries



No bolts... no wrenches necessary. The boltless shelf adjusts to any size opening on 4" centers. No space is wasted.

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Utilize vertical space better. In every case checked, fewer racks are needed. Saves as much as one third of floor space usually occupied.

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Adjusted easily for any size load. Standard uprights can be spaced to suit any size shelf.

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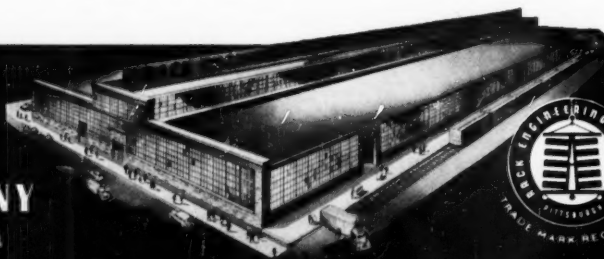
- **QUICKLY ERECTED . . . UNIT WELDED UPRIGHTS**

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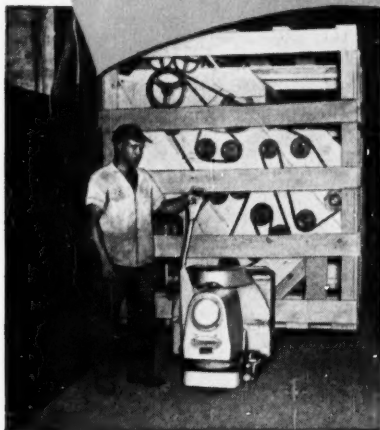
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CUTTING**

Automatic

**ELECTRIC
TRUCKS**

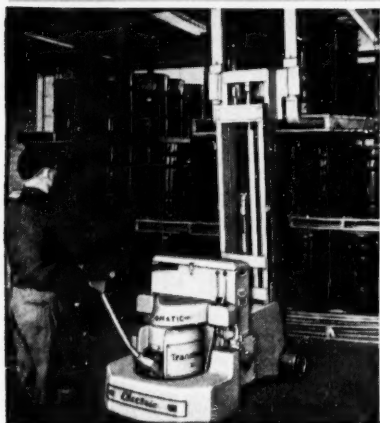


One man with Automatic Transporter, handles 4000 lb. loads (all he handled manually was 1500 lbs.)—50% faster. Savings: two-thirds in total time and costs for Continental Oil Machinery plant in Alabama.

When you take more time to do a job than you'd have to with *really modern* equipment, your costs, too, are higher—your profits less! That's why so many progressive firms (as in applications shown on this page) are switching to modern Automatic Electric Trucks.

You see, Automatic makes a truck for practically every kind of materials handling job...to do *that* specific job at low cost—*profitably!* Thus your Automatic truck is never *under-powered* and inefficient, nor *over-powered* and costly to operate...it's "keyed-to-the-job" for maximum efficiency, minimum cost!

To know what Automatic trucks can do for you in cutting costs and speeding production, simply mail the coupon below—today.



Standard Brewery, Cleveland, Ohio, with Automatic Transstacker, stores 400 lb. Coastic Soda Drums, 4 to the pallet, 3 pallets high—bottle cases 72 to the pallet, 23 cases high. Saves 40% of valuable storage space.



Example for any commodity in bags. Armstrong varnish plant, Chicago—where Automatic Transporters carry 5000 lb. loads (100 bags per skid) saving thousands of man-hours yearly—receiving, handling, storing, shipping.



Automatic supplies special attachments for special jobs. Here special clamps on Automatic Skylift trucks permit vertical stacking of 1470 lb. rolls received horizontally. Save 20% storage space for Bemis Bro. Bag Co., Mobile, Ala.

Send today for Automatic cost-cutting case histories in YOUR industry.

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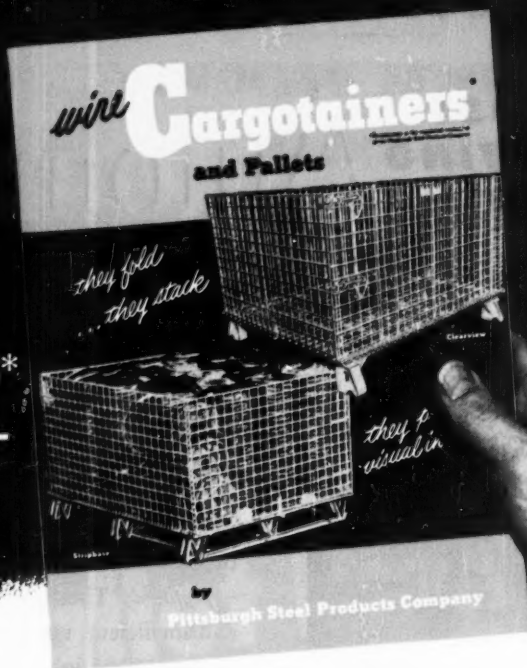
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**Write for this
free booklet**

**See How
CARGOTAINERS*
Reduce Materials-
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Here's a new booklet that will show you how others are shipping and storing a wide variety of products in Pittsburgh Wire Cargotainers and reducing their materials-handling costs substantially. The booklet shows:

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- How other methods have been replaced.
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*Cargotainers is the registered trade-mark of the Pittsburgh Steel Products Company.

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by

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a subsidiary of

Pittsburgh Steel Company

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Company _____

Address _____

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MATERIAL FLOW

OCTOBER, 1953
VOLUME 9, NO. 1

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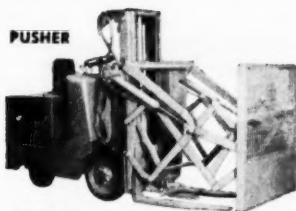
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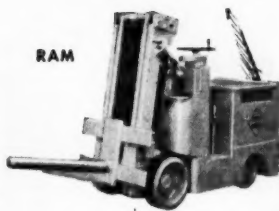
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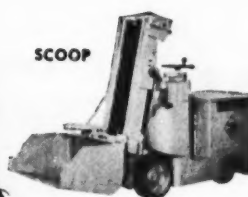
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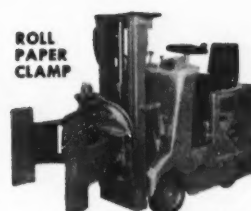
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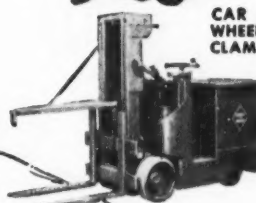
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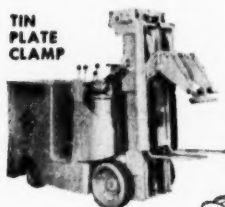
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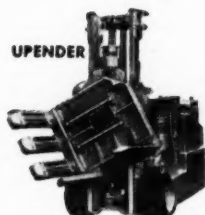
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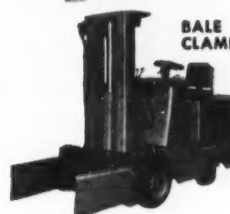
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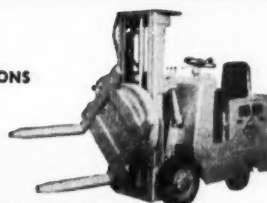
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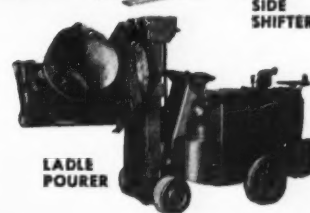
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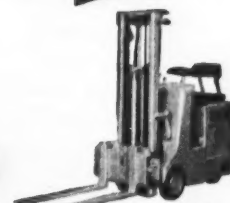
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ELWELL-PARKER POWER INDUSTRIAL TRUCKS

Established 1893

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New **HEAVY-DUTY TENNANT** MACHINES HELP YOU SAVE 35% to 80% in FLOOR CLEANING COSTS!

These new machines are typically TENNANT—designed for tough round-the-clock jobs . . . built to save you 35% to 80% in cleaning costs. And they're engineered for extra years of service.

You'll like their new power, speed and convenience—for pulverizing grease-caked grime . . . power sweeping . . . high speed dry-cleaning . . . and many special uses. Gas, electric or battery-powered; 8" to 48".

WRITE TODAY for details. We'll gladly estimate your plant's savings.



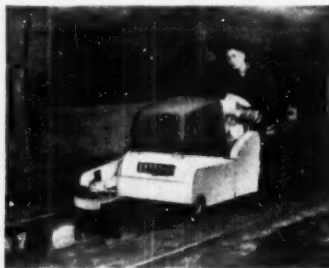
MODEL R SCARIFIER—for cleaning grease-caked aisles. Moves with traffic. Faster than 6 to 18-man crew! Cleans 36" path; dumps hydraulically.



MODEL 75 SWEEPER—New! Pays for itself in about 1 to 6 months. Sweeps 100,000 sq. ft. per hour. Has instant reverse; dumps in 30 seconds.



MODEL K MACHINE—A proved time-saver. Cleans 16" path. Pulverizes and picks up in 1 operation; leaves clean, fast-trucking surface. Has many uses. Gas or electric models, to 7.3 hp.

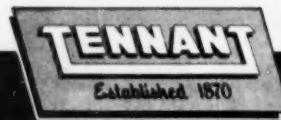


MODEL 24 SWEEPER—The low-cost sweeper with big sweeper capacity. Cleans 24" to 36" path (with sidebrush); speeds 2 to 8 mph. Efficient brush and vacuum system, automatic clutch.

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COMPANY _____

ADDRESS _____

**INDUSTRIAL
FLOOR MACHINES**

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LETTERS
to the editors

FLOW Copies In Demand

To FLOW:

As Chairman of the Standards and Education Committee of the Material Handling Society of Montreal, one of my responsibilities is to maintain the chapter library. We feel that a complete file of FLOW magazines would be a valuable addition to our library, but unfortunately, we do not have any back copies.

Would you kindly advise us how they could be made available.
J. L. Smyth
Montreal Chapter, AMHS

Back issues of FLOW have been in such constant demand that we are completely out of extra copies of many issues. Perhaps chapter members can be of help in providing copies for the group's library.

Close Quarters Stacking

To FLOW:

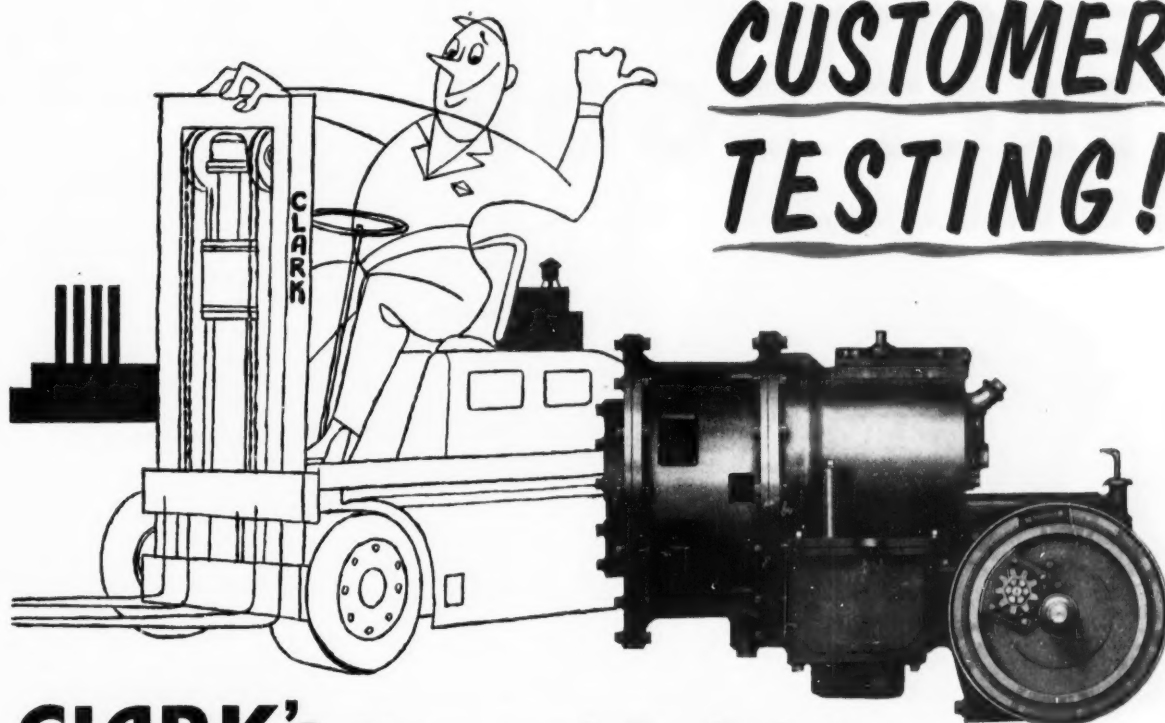
We seem to have developed a handling problem, and rather than start out in the dark, you might be able to give us some leads.

Briefly, we need a fork lift truck that can take a roll clamp. It must be electric and easily convertible from forks to roll clamp. Rolls weigh up to 1000 pounds and vary in diameter from 35 to 41 inches; in width from 14½ to 40 inches. They must be picked up horizontally and stacked vertically.

The fork lift operation must take skids up to 2500 pounds; handle small skids of 28 x 40 as well as larger ones 42 x 54 and stack 120 inches high. The entire operation must be accomplished in aisles only seven feet wide. The variance in size of skids and rolls seems to

Ready for you after 12 months of brutal

CUSTOMER TESTING!



CLARK'S New and Exclusive HYDRATORK DRIVE*

Here's how it improves your fork-truck operation:

- 1 MORE WORK:** faster get-away, positive power without slippage; moves heavy loads and climbs ramps with ease.
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- 3 GREATER SAFETY:** hydraulic brake system, linked to torque converter, automatically cuts power; engine cannot be started unless controls are in neutral.
- 4 IMPROVES DRIVER EFFICIENCY:** fingertip direction control and elimination of gear-shifting conserves operator energy.

Not one, but *eighteen* HYDRATORK-equipped trucks were placed in customers' plants for a full year of on-the-job testing. Without exception, these units proved that reduction in driver fatigue and of truck downtime results in greater production from HYDRATORK-equipped trucks.

* Now available in 6-7000 lb. capacity truck



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Get this fork lift FACT BOOK



Compare
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Here is a profitable fact book for management, specialists . . . and everyone interested in fast, efficient materials handling at the lowest possible cost! For the first time, you can compare the features of all fork lift trucks and check them one by one. Compare BUDA'S industrial-type Diesel and gasoline engines—built especially for materials handling, they'll outlast other engines by thousands of hours. Compare BUDA'S maneuverability—it pivots on a dime, stoops under low portals, inches into tight corners, deposits ponderous cargo with gentle ease. Compare BUDA'S lightning-like maintenance—strip to frame in 22 minutes and save a day—change clutch in 30 minutes and save another day. Buda features save dollars—hundreds of dollars. This "fact book" tells how!

Send for the BUDA Fact Book that tells how
BUDA is on the production line all the time!

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Diesel and Gasoline Engines, Lifting
Jacks, Railroad Equipment, Earth Drills,
Materials Handling Equipment.

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LETTERS

Continued

make all counterbalanced trucks we have seen impractical in fulfilling our needs.

H. C. Norris
Columbian Art Works, Inc.

We have directed Reader Norris to the equipment manufacturers who, in our estimation, have licked the problems outlined in this letter. At least, we sure hope they can back up our recommendations.

Small And Inexpensive

To FLOW:

Please put us in touch with a concern that can furnish us with a small tractor for hauling rough lumber from yard to planer mill. The lumber is loaded on 4-wheel rubber-tired wagon and the load weighs about 5000 pounds or less. Many mills use regular farm tractors, but we would like something not so clumsy and less expensive for this purpose.

R. E. Knoll
Greer, Downs, Knoll Lumber Co.

The names of several manufacturers whose equipment would be ideal for this operation have been forwarded Reader Knoll.

Trash Disposal Problem

To FLOW:

We have a problem of obtaining metal containers which can be spotted about the plant to receive combustible refuse, and which can later be picked up by our Hyster fork truck, taken to the incinerator and dumped. Can you offer a satisfactory solution.

Ray F. Kuns
Trotwood Trailers, Inc.

The problem is not a new one by any means . . . and material handling equipment manufacturers have designed containers to aid industry in the removal of scrap and refuse as speedily and efficiently as possible. Reader Kuns has been sent a list of companies who have just the container he seeks.



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1000 pound AIR HOIST

for

SPEED...

Lift rate ...
over 40 ft. per minute!

SIZE...

Overall length 10 $\frac{1}{4}$ "
weighs only 28 $\frac{1}{2}$ lbs.

SAFETY...

Betters all
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HOIST TROLLEY



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Also . . . Air Tools . . . Lubricating
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Please send full details on the new ARO Air Hoist, without obligation.

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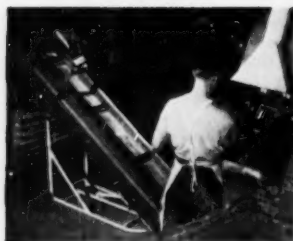
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You expect more
when you buy
Leadership

And you should. You've found that leadership implies *extra* dividends. Much better values. That's because a reputation for leadership is earned the hard way—by constant consideration of things beyond mere function and cost. Mostly, they are ideas . . . with *you* in mind. New ideas for better product use; new ideas on how to improve day-by-day performance; new construction ideas that extend the product's service life yet cut costs; and, always, new ideas for improving every branch of service to the customer. Some people call all this "creative manufacturing". Others talk about research . . . both product and market. But, call it what you will, you know that leadership is worth first consideration when you buy new equipment. In materials handling, too.

*T.M.

Rapistan®



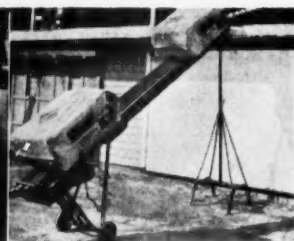
PRESS-VEYOR* flows stampings, screw machine products and similar parts from machine to tote box or shipping carton.



TABLE-VEYOR*, horizontal power belt unit popular for assembly, inspection, checking, order packing operations.



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LS ALUMINUM BELT CONVEYOR*, unusually light and versatile, highly maneuverable for job-to-job loading, stacking.

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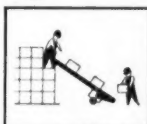


Do the job better... for less money

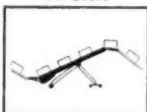
It's your constant problem. And ours, too. In conveyors, we believe the answer lies in standardization—so that you get more versatility in use and more dependability in service, at lower costs. Today, all Rapistan conveyor units, both power and gravity, may be used together in a wide range of economical combinations giving you substantial savings! In almost every industry, you'll find these Rapistan installations providing extremely effective, low cost solutions to innumerable types of handling problems.

Some ideas on cost cutting

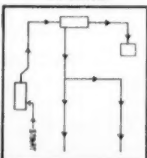
Rapistan's Aluminum Stevedore, Jr.* is a lightweight, mobile, powered unit. Here are just a few of the things this one unit will do: You'll find it highly efficient in stacking or loading; with equal facility, it can be used as a booster or speed control unit in a line of Rapid-Wheel* or Rapid-Roller* gravity sections; or it can be included in a complete flow system throughout your warehouse or plant. This is typical of the multi-purpose principle that helps you save money when you buy Rapistan. Such cost-saving



A UNIT



A LINE



AN ENGINEERED SYSTEM

versatility is basic in Rapistan's entire line of light, medium, and heavy-duty equipment. We'll gladly be specific—and show you how you can benefit by it.

For complete details on all Rapistan equipment, ask for this illustrated catalog packed with ideas and suggestions for cutting handling costs.



Service when you want it... as you want it

Our guess is that you'd like dependable service before, during, and after installation of your handling equipment. That's why Rapistan has more than fifty sales-service agencies across the country. From the original survey of your needs, through installation and maintenance, you'll have the dependable supervision of factory-trained specialists. They'll tell you about lease plans, service contracts, and the many other Rapistan "extras". But, best of all, you'll find them on the spot with the service you want—when you want it.

Now, you can lease equipment

Recently, Rapistan startled the industry with a new idea—why not *lease* conveying equipment? Leasing allows you to fix your handling costs exactly, relieves capital for other investment purposes, cuts down on your bookkeeping of depreciation, insurance, maintenance and similar items, and it gives you a nice hedge against rising prices. You can use Rapistan's new lease plan whether you need a few conveyor units or a complete, engineered system. Full information is yours for the asking.



There's gold in these reports!

It's the "gold" of valuable experience contained in Rapistan Field Reports. There are many of them... some in your own industry... and they're authentic. Each report covers an actual materials handling problem as it existed, and the solution—with photos, plans, specifications, and equipment costs. You may have any you wish. Just indicate your interest on the coupon below. We'll send you the reports promptly—without charge or obligation.

YOURS FOR THE ASKING!

Complete Rapistan Field Reports on how materials handling problems similar to yours have been successfully solved by and for leaders in your own field.

Check reports below which will be of greatest benefit to you:

- | | |
|---|--|
| <input type="checkbox"/> Aircraft Parts | <input type="checkbox"/> Household Appliances |
| <input type="checkbox"/> Auto Supplies | <input type="checkbox"/> Laundry Services |
| <input type="checkbox"/> Beverages | <input type="checkbox"/> Leather Products |
| <input type="checkbox"/> Building Supplies | <input type="checkbox"/> Machine Parts |
| <input type="checkbox"/> Canneries | <input type="checkbox"/> Magazines, Newspapers |
| <input type="checkbox"/> Chemicals | <input type="checkbox"/> Meat Packing |
| <input type="checkbox"/> Cosmetics | <input type="checkbox"/> Metal Stamping |
| <input type="checkbox"/> Dairy Products | <input type="checkbox"/> Paint Products |
| <input type="checkbox"/> Fabricated Metals | <input type="checkbox"/> Paper and Publishing |
| <input type="checkbox"/> Floor Coverings | <input type="checkbox"/> Pharmaceuticals |
| <input type="checkbox"/> Food Products | <input type="checkbox"/> Power Tools |
| <input type="checkbox"/> Freight Terminals | <input type="checkbox"/> Sugar Refining |
| <input type="checkbox"/> Fruits, Vegetables | <input type="checkbox"/> Tobacco Products |
| <input type="checkbox"/> Furniture | <input type="checkbox"/> Warehousing |
| <input type="checkbox"/> Grain and Feeds | <input type="checkbox"/> Waste Materials |
| <input type="checkbox"/> Grain Milling | <input type="checkbox"/> Wood Products |
| <input type="checkbox"/> Grocery Store | |
| <input type="checkbox"/> Heating Equipment | |

There are many other Rapistan Field Reports. If your business is not listed, please indicate your special needs below:

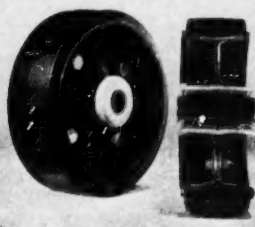
The RAPIDS-STANDARD COMPANY, Inc.
52 Rapistan Bldg., Grand Rapids 2, Mich.

Name _____
Company Name _____
Street Address _____
City _____ Zone _____
State _____

GIVES YOU MORE



RACK STORAGE with slightly pitched sections of Rapistan Rapid-Wheel gravity conveyor assures first-in-first-out inventory.



MB INDUSTRIAL WHEEL has demountable tire bonded to band of steel. Saves 30% on operating costs compared to molded-on type.



NEW 1.9 ROLLER CONVEYOR has 2500 lb. capacity for heavy industrial applications. Variety of lengths, widths.



COMPLETE LINE OF CASTERS, stamped steel, Cold Forged and Steel Forged for wide range of operating conditions.

WEHLE SPACE-SAVER CONVEYOR

- All steel construction
- No belts—will operate in limited space and under conditions no other type can operate
- Lower maintenance cost
- Lower installation cost



- Manufactured with and without benches in different widths, lengths, and capacities to meet your individual requirements.

Mail This Coupon

Learn how WEHLE CONVEYORS can produce dollar-and-space savings. Send for bulletin now.

WEHLE CONVEYOR CO. 10
201 Water St., Binghamton, N. Y.

Please send me bulletin describing your conveyors.

NAME

COMPANY

STREET

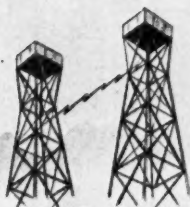
CITY STATE

WRITE TO
WEHLE CONVEYOR COMPANY

201-203 WATER STREET • BINGHAMTON, N. Y.

Circle No. 164 on Reader Service Card for more information

FLOW • OCTOBER, 1953



1922—First power line carrier current equipment installed.

1944—First application of frequency modulation to power line carrier current equipment.

1947—First microwave relay system in commercial operation.



1875—Elihu Thomson, one of the founders of General Electric, transmitted and received wireless signals for a distance of about a hundred feet.



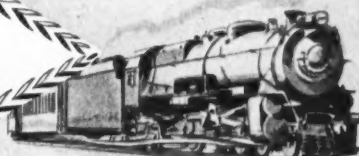
1915—Sample radio-telephone transmitter installed on two U. S. battleships and used in 1916 Spring Naval Maneuvers.

1931—Sonic locator developed for use by ships in fog. It was the first step toward radar.

1937—First application of radiocommunication aboard fireboats. New York City Fire Dept. installation.



1923—First airmail plane radio communication equipment installed and tested.



1922—First installation of radio receiver aboard Pullman cars.

1927—First front-to-rear railroad communication equipment installed.

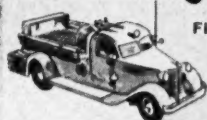
and today...



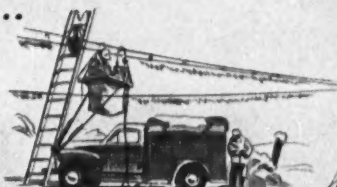
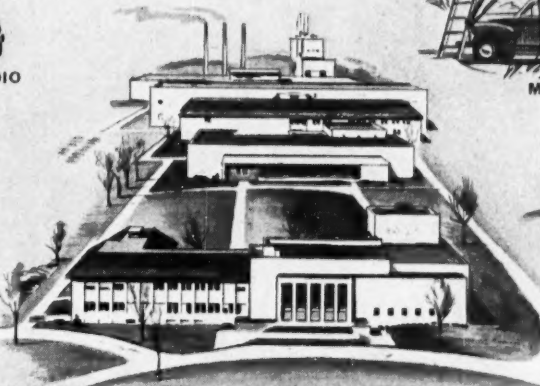
INDUSTRIAL 2-WAY RADIO



POLICE



FIRE DEPTS.



MUNICIPAL



CONSTRUCTION



Matchless Heritage IN COMMUNICATIONS ENGINEERING

From the several companies formed to manufacture Edison's historic electric lamp, G.E. is today a company with 200,000 products . . . engaged in 13 of the 21 basic manufacturing industries. Its tremendous human and material resources are constantly working to give you a better life with new and improved products.

Communications in your business is the outgrowth

of many G-E "firsts." Today — using G.E.'s high-performance, low maintenance radio units—industry, utilities, and municipal government reap these benefits: instant reliable communication for increased productivity . . . area control . . . citizen protection.

For information write: General Electric Company, Section 32103 Electronics Park, Syracuse, New York.

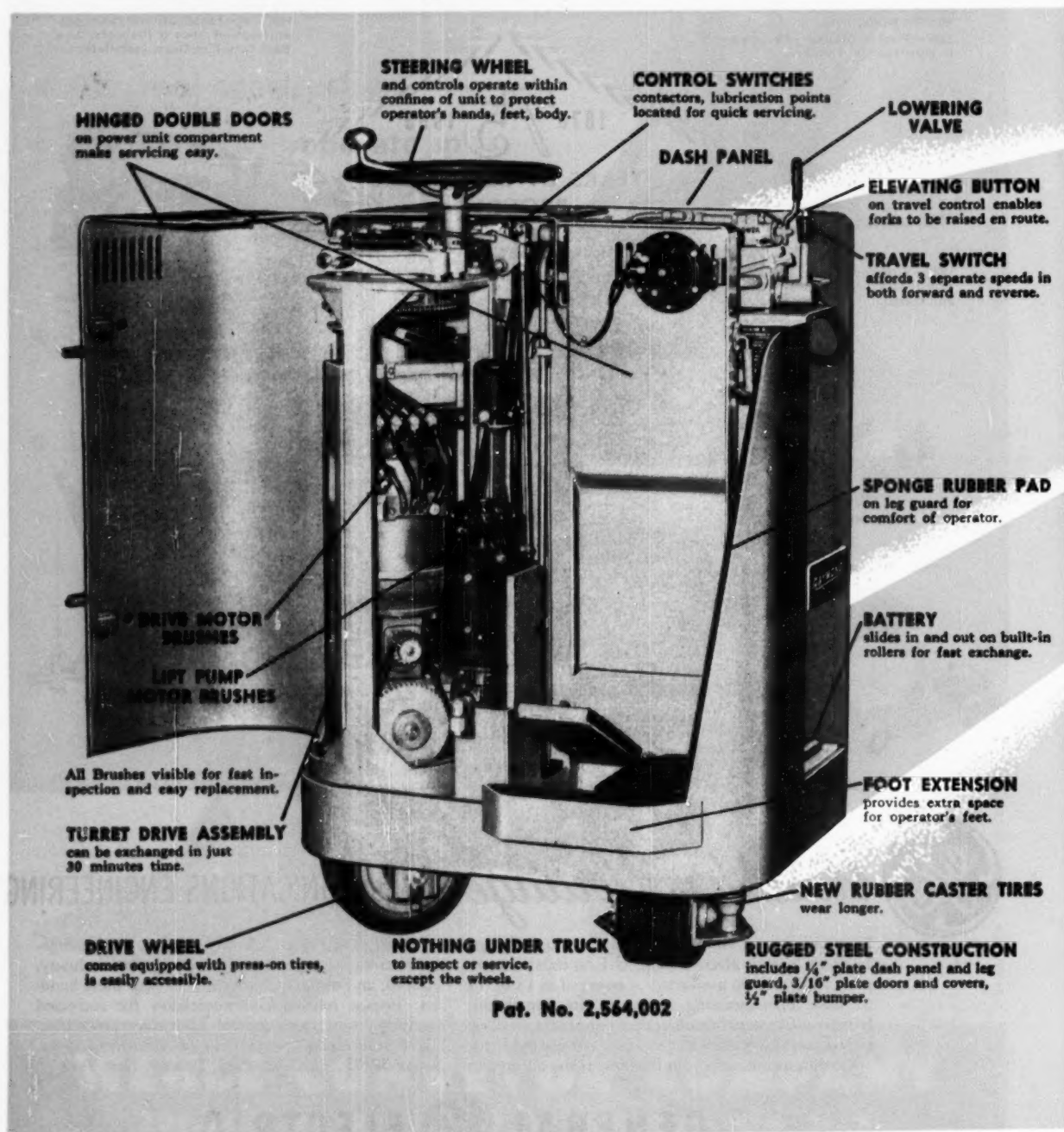
GENERAL  ELECTRIC

Circle No. 56 on Reader Service Card for more information

NEW POWER UNIT



Opens up like a book...





**ANOTHER
RAYMOND
FIRST!**

**Now furnished on all
RAYMOND ELECTRIC TRUCKS**

for fast, easy servicing

It's here...

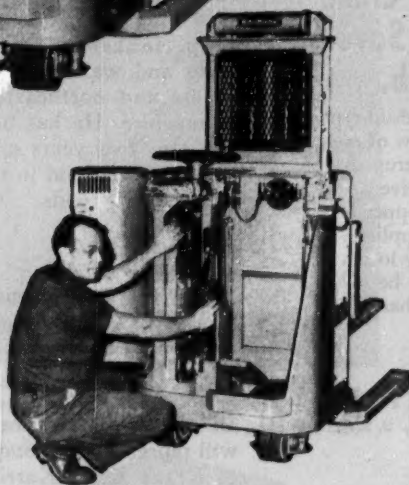
**the day you can service an electric truck
as easily as you'd open a book. Because
all parts on this new Raymond Power Unit
are housed behind hinged double doors.**

**There's nothing under the unit to inspect
or service, except the wheels.**

This great unit now is furnished on all Raymond Electric Trucks. No other truck offers you a power unit like it! It's the same time-tested power unit that made 6' aisles possible—developed and used by Raymond for the past 4 years. Only the working mechanism has been re-arranged for even greater ease in maintenance, plus rider comfort.

The Raymond Power Unit gives you maximum operation with a minimum of downtime. It's designed for speedy servicing—the complete turret drive assembly, for example, can be exchanged in just 30 minutes. What a timesaver for your service department!

This unit provides more space for the operator than any other truck of its type. All controls operate within the confines of the unit—are conveniently grouped for ease of use. At no time do any parts of the operator's body extend beyond the unit. It's ruggedly constructed too—with heavy gauge plate steel throughout frame for long life and lasting appearance.



SEND FOR BULLETIN Get the facts on the new Raymond Power Unit before you buy your next industrial truck. Mail this coupon today!



**ELECTRIC INDUSTRIAL TRUCKS
HYDRAULIC ELEVATING EQUIPMENT**

The RAYMOND CORPORATION

3319 Madison St., Greenc, N.Y.

Please send me bulletin describing your new Power Unit.

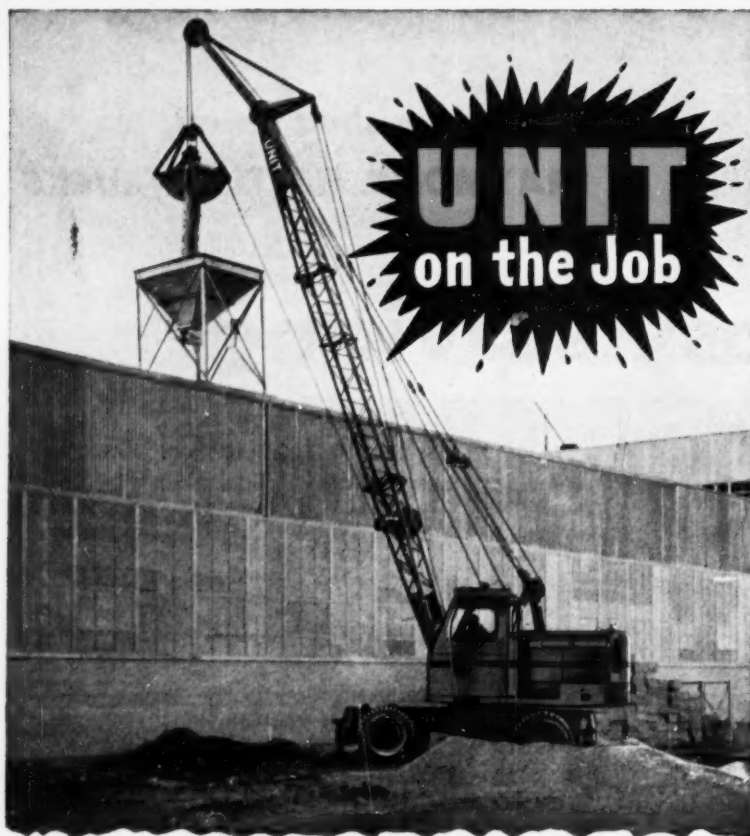
Name Title

Company

Street

City State

Circle No. 111 on Reader Service Card for more information



EASIER and FASTER! Unit 357 Mobile Crane Eliminates Stationary Elevators . . . Saves Man Hours on Factory Roofing Job.

Primarily this roofing job would require the erection of a scaffold-type elevator to hoist wheelbarrow loads of slag pebbles, plus a crew of men to load and unload the wheelbarrows. This means loss of setup time and duplication of handling. Now, with a UNIT 357, you drive up to the job — hoist the storage hopper to the roof — fill the hopper and the job is started. When insulation, roofing paper or other supplies are required, the UNIT 357 can move around the building to any location and hoist the material right on the spot where it's going to be used. Mr. Contractor, compare these two methods of material handling. Turn your lost time into PROFITS with UNIT.

Get the facts — Write for literature.

UNIT CRANE & SHOVEL CORPORATION
4631 WEST BURNHAM STREET • MILWAUKEE 14, WISCONSIN, U. S. A.



**1/2 or 3/4 YARD EXCAVATORS...CRANES UP TO 20 TONS CAPACITY
CRAWLER OR MOBILE MODELS . . . GASOLINE OR DIESEL**



All Models Convertible to ALL Attachments!

A 7479-35-C

Circle No. 135 on Reader Service Card for more information

**news from the
SALES FIELD**

If Rapistan of Michigan, Inc. doesn't have a familiar ring to you, it's simply because the name is new. . . . Formerly known as Rapids Handling Equipment Co. Inc., the new name went into effect September 1. It was chosen in order to make the company's advertising more effective by linking it more closely to the Rapids-Standard Co., whose line of conveyor equipment is represented.

Walter P. McLaughlin has been appointed specialty sales representative in the New England territory for the Nashua Corp. He also will service gumming and waxing accounts in Maine and northeastern New Hampshire. He has been with the firm five years and has a broad background in the paper and printing fields.

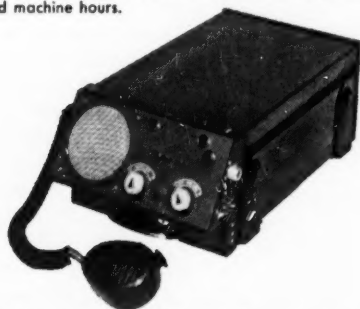
The H. A. Stevenson Inc., 2988 East Grand Blvd. in Detroit, has been appointed by Silent Hoist & Crane Co., Inc. as its agency in that area and all of Michigan. The agency will represent the complete line of Krane Kars, Karri-Go mobile boom cranes and heavy-duty Liftruk fork trucks.

Reorganization and expansion of the Thilmany Pulp & Paper Co. sales staff was announced by Guy E. McCorison, vice president in charge of sales. Along with a redistricting of sales territories a new sales branch has been established in Cincinnati under the

They gave a fork lift a "VOICE" and saved OVER \$15,000 A YEAR!



Coordination increases efficiency. Dispatcher directs fork lift operators from Motorola base station console, coordinates operations and increases productive man and machine hours.



Uni-Channel mobile radio—serves as fixed or mobile station. Built-in "Permakay" filter eliminates 15 nuisance tuning adjustments, assures instant communications between Central Dispatcher and fork lift operators.

Leading Mfr.* cuts handling costs from
45¢ to 30.9¢ per load with

Motorola 2-way radio

Before installing Motorola 2-way radio, it cost this company 45¢ to handle each fork lift load. Immediately following installation of Motorola communications, cost per load fell 14.1¢. Figured on a 12-month basis, total savings amounted to \$15,074.04—a 500% return on the initial investment of \$3,038.54. In other words, Motorola radios paid for themselves in just 2½ months of use—*actually paid their own cost five times over in one year!*

Motorola makes it a *pleasure* for you to own and operate your own radio communications system. Eight exclusive Motorola improvements guarantee precision selectivity, durability and obsolescence-proof design. And, the exclusive "Permakay" filter eliminates 15 nuisance tuning adjustments.

Get the facts telling how Motorola pays for itself in direct savings. Let a friendly Motorola engineer in your vicinity give you the complete story.

**Company's name is in our files.*

Write Dept. 2286-FL today!

2-way Radio

Motorola

Communications & Electronics, Inc.

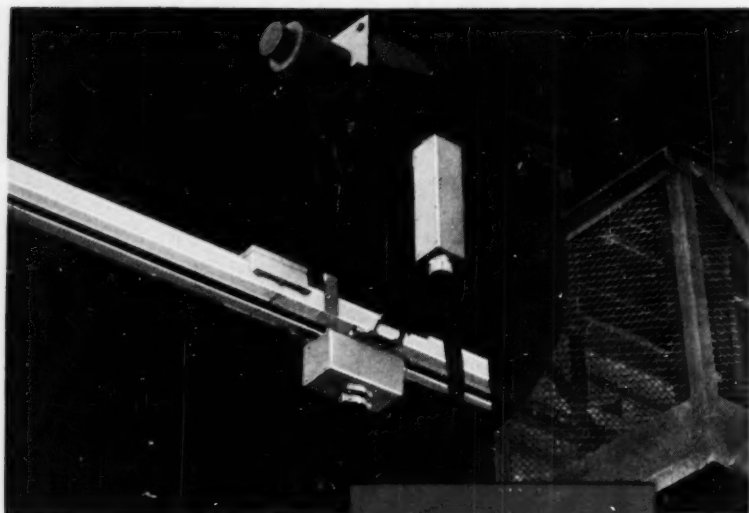
A SUBSIDIARY OF MOTOROLA, INC.

900 N. Kilbourn Ave., Chicago 51, Illinois • Rogers Majestic Electronics Ltd., Toronto, Canada

Circle No. 100 on Reader Service Card for more information.



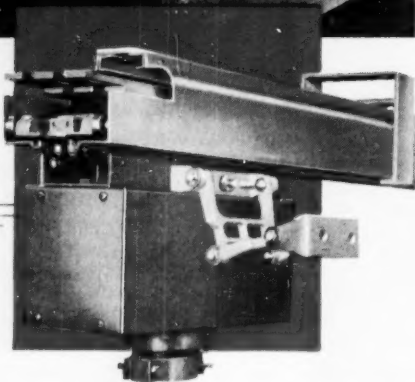
electrification for **HEAVY DUTY** **CRANES and HOISTS**



FEEDRAIL®

Moving

POWER SYSTEMS



Why let Crane and Hoist wiring endanger workers or be a potential hazard to your plant? The new Heavy Duty Feedrail trolley busways give you the safe way because:

1. They're a built-for-the-purpose system, designed and constructed expressly for high amperages.
2. All current carrying conductors and trolley contacts are protected every inch of the way.

In addition to giving you maximum safety, Heavy Duty Feedrail will readily fit your specific application requirements. Its standardized components—accurately, ruggedly constructed—make for fast, easy installation. And, you'll find that its low maintenance, long life and continuous dependable service are economy factors in plant operation. Send for Heavy Duty Feedrail descriptive bulletin. Write Dept. F-10.

SOLD BY MORE THAN 1,000 ELECTRICAL
DISTRIBUTORS FROM COAST TO COAST

53-2



Never Becomes Obsolete

FEEDRAIL CORPORATION

Subsidiary of Russell & Stoll Company, Inc.
125 BARCLAY STREET • NEW YORK 7, N. Y.

SPECIAL QUALIFIED REPRESENTATIVES IN PRINCIPAL CITIES

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18

SALES FIELD

Continued

supervision of **Ray E. Bloomstrand**, formerly of the firm's Chicago staff. **Vern G. Hagg** has been transferred from the mill sales staff to the Chicago office and **James J. Fitzpatrick** has joined the company's Ridgewood, N. J., staff.

John B. Pruitt has been named the Baltimore representative for **C & D Batteries, Inc.**, according to **Samuel W. Gibb**, vice president in charge of sales. Pruitt formerly was associated with the **Thomas A. Edison Inc.** and also gained considerable experience in the battery field during his two years in the submarine service and Naval Research Laboratory.

Kramer Handling Equipment Co. has been appointed distributor for **Beacon** power-operated dock ramps and allied material handling equipment manufactured by **Beacon Machinery Inc.** The firm is located in Kansas City, Mo., and will service in addition to that immediate area, all of the state of Kansas and the western portion of Missouri. **John Kramer** is president of the company.

Fenton Hall has been appointed general sales manager of material handling equipment for the British division of the **Yale & Towne Mfg. Co.**, it has been announced by **Philip B. Niles**, vice president. Hall has been transferred to England from Chicago where he served as export sales manager for **Automatic Transportation Co.**, a division of **Yale & Towne**. Most of his time since joining **Automatic** in 1945 has been spent abroad directing the sales of material handling equipment.

FLOW • OCTOBER, 1953



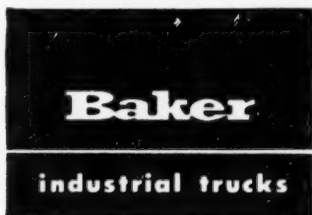
How WESTINGHOUSE *saves \$37,000 yearly* at its Trafford, Pa. Foundry

■ This plant formerly loaded and unloaded bagged material, handled barrels and stored patterns by manual methods. Today fork trucks have mechanized all these operations. Result: *an annual saving of \$37,000.*

In the warehouse, for example, the fork trucks now stack materials on pallets—right up to the rafters. Indirect benefits: space saving, fewer accidents, less material damage. Direct benefits: substantial savings in labor costs.

Fork-truck handling and tiering of patterns eliminated back-breaking work, increased storage capacity 500% and made additional labor savings.

Unloading bagged material (wood flour, sea coal, mogal, pich, etc.) and fire brick (formerly man-handled one at a time) is now done in palletized unit loads—another big cost saver. And still more money is saved by handling barrels with a Baker 4-Purpose Carriage truck and drum shoes.



write for

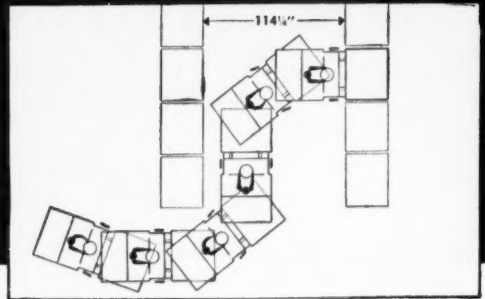
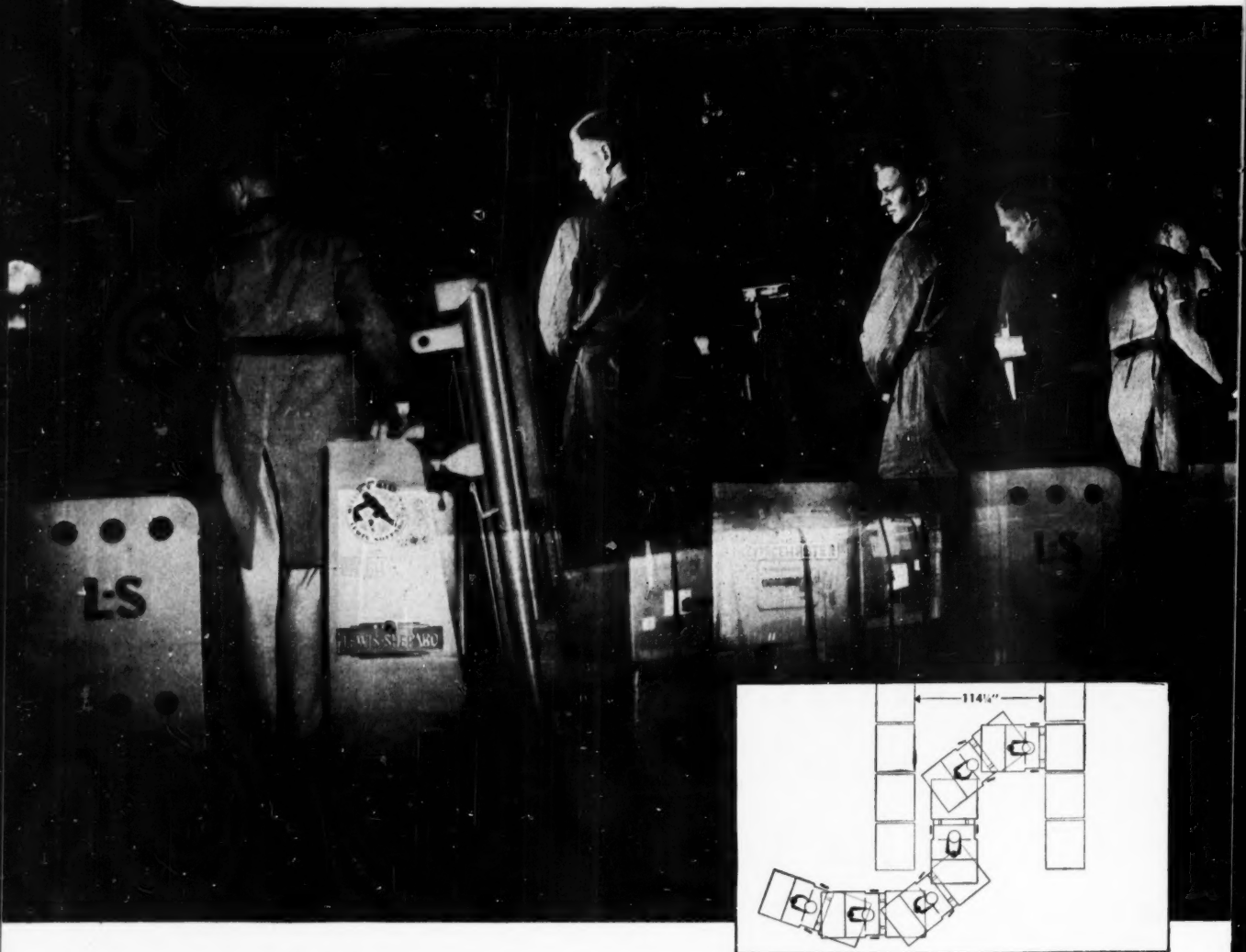
6-page special report on the application of Baker attachments to various loads.

THE BAKER-RAULANG COMPANY
1219 WEST 80th STREET • CLEVELAND 2, OHIO

BAKER-LULL Corporation, Subsidiary, Minneapolis, Minn.
Material Handling and Construction Equipment.

Circle No. 15 on Reader Service Card for more information.

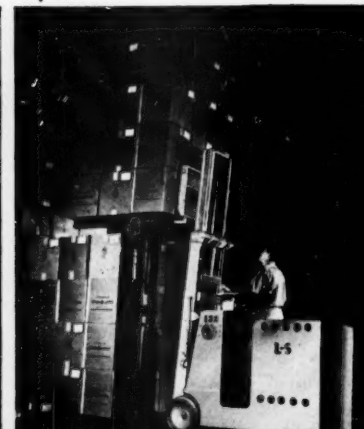
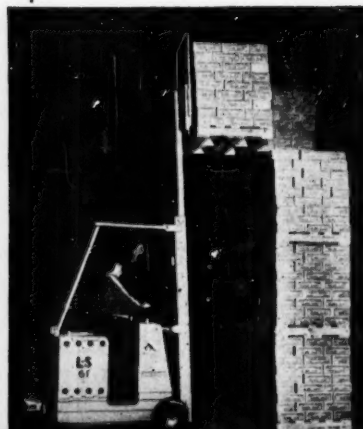
Safer, faster forward and reverse



SpaceMaster "59"
Electric Fork Truck
Capacity: 1500 lbs.
Turning Radius: 59"

SpaceMaster "61"
Electric Fork Truck
Capacity: 3000 lbs.
Turning Radius: 61"

SpaceMaster EFTT-4
Electric Fork Truck
Capacity: 4000 lbs.
Turning Radius: 66 1/2"



fork truck operation

with **L-S** STANDRIVE DESIGN

One of the important advantages of Lewis-Shepard SpaceMaster Electric Trucks is their exclusive "Standrive" design. From his standing position the operator has better visibility for either forward or reverse operation. Trailing a load becomes a safe, fast operation . . . free from the "neck-strain" and blocked vision that operators experience when in a sitting position. Moreover, the SpaceMaster's open corridor with only one single, short step lets your operators enter or leave quickly from *either* side . . . saves time as well as improving visibility.

Compare all these improved features . . . you'll agree, SpaceMaster is your best fork truck investment:

- 1 Greater Dependability — less routine maintenance.
- 2 Operates in Less Space — compact design, smaller turning radius.
- 3 Greater Speed — more powerful traction motor, faster lift motor.
- 4 Full Free Lift — essential where headroom is limited.
- 5 Smoother, Timed Acceleration — with Magnetic Controls.
- 6 99% of Foot Braking Eliminated — with dynamic braking.
- 7 No Grease Points — sealed ball bearings.
- 8 Absolutely No Under Truck Adjustments — all maintenance from topside.
- 9 Maximum Stability — lowest center of gravity.

Here's more proof of Lewis-Shepard Electric Fork Truck dependability

Blue-Chip companies in these industries recently reordered L-S SpaceMaster Fork Trucks:

Paper Mfr.	26 L-S in use — reordered	3
Elec. Gds. Mfg.	41 L-S in use — reordered	13
Grocery Chain	6 L-S in use — reordered	1
Paint Mfr.	1 L-S in use — reordered	6
Motor Transport	1 L-S in use — reordered	12
Auto Mfg.	4 L-S in use — reordered	1
Bottler	2 L-S in use — reordered	5

Make a Visual, Unbiased Comparison

Ask for handy L-S Comparison Charts . . . list the merits of each manufacturer's trucks side-by-side. Lewis-Shepard invites this comparison because we believe our complete line of electric trucks is genuinely superior . . . and when you compare the facts, we think you'll agree.

Write for your Comparison Charts now, or call your local L-S Representative — see "Trucks, Industrial" in your Yellow Phone Book.

Circle No. 81 on Reader Service Card for more information.



LEWIS-SHEPARD

14-10 Walnut St., Watertown 72, Mass.

Please send

- ☐ Electric Fork Truck Comparison Chart.
☐ Proof Folders showing L-S Trucks at work.

Name

Company

Street

City State



6 REASONS WHY *Leading* INDUSTRIES PREFER

MICHIGAN APPROVED CRANES



Engineered with All
the MOST WANTED FEATURES

- 1 SHOCK-RESISTING FLUID DRIVE
- 2 ANTI-FRICTION BEARINGS
- 3 PUSH-BUTTON MAGNETIC CONTROLS
- 4 EXTRA-RIGID BRIDGE
- 5 LOWER HEAD ROOM
- 6 of course IMMEDIATE DELIVERY

WRITE FOR FREE LITERATURE TODAY!
MICHIGAN CRANE & CONVEYOR CO.
117 MCKINSTRY AVENUE • DETROIT 9, MICHIGAN

Circle No. 163 on Reader Service Card for more information

association
and society
NEWS

● Recently elected president of the Detroit section of the American Society of Mechanical Engineers was Dr. Frank L. Schwartz, professor of mechanical engineering at the University of Michigan. Dr. Schwartz



Schwartz is widely known throughout the engineering field, having served as a consultant on numerous engineering projects by private industry and the Navy. He had been teaching at Pratt Institute for 10 years before going to Michigan.

● A Material Handling Division for the National organization has been formally established in the Society for the Advancement of Management (SAM), headed by Vice President Donald W. Pennock of Carrier Corporation, Syracuse, N. Y. Mr. Pennock is the past president of the AMHS.

● The Cleveland Chapter of the American Material Handling Society renewed its activity with an initial Fall meeting September 24. A field trip through the new Ford Motor Co. foundry in Cleveland preceded the evening dinner and meeting. Ford Paddock, factory manager, was the tour guide. On October 22, J. G. Anderson, material handling consultant and instructor at Wayne university material handling laboratory in Detroit, will be guest speaker. His topic will be "Starting a Material Handling Program From Scratch."

PAYLOADER

Tractor Shovels

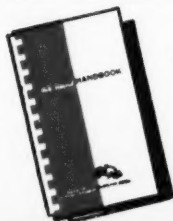


... IN ANY INDUSTRY

The sugar industry, like many others, has cut handling costs greatly and improved production methods with "PAYLOADER" tractor-shovels. Much raw sugar is now shipped in bulk instead of sacks because the Model HA "PAYLOADER" loads and unloads box cars and trucks of bulk materials so fast and efficiently. The cost of sacks, of sacking operations and of emptying sacks is also eliminated. Model HA's and larger "PAYLOADERS" also save time and costs in stockpiling of raw sugar and moving it from stockpiles to processing.

Sugar! Sand! Chemicals! Clay! Chips! — all kinds of bulk materials in all kind of industries are being

scooped-up, unloaded, loaded, stockpiled, transported and spread by "PAYLOADERS" — indoors and outdoors — at great savings in time and costs. If *you* have bulk-materials to handle, it will pay you to get the full "PAYLOADER" story from your Hough Distributor or The Frank G. Hough Co., 731 Sunnyside Ave., Libertyville, Illinois.



FREE HANDBOOK

tells how and where to look for signs of inefficient bulk materials handling ... how to analyze, organize and set up an efficient handling system. Plus many useful tables and data. Write for "Bulk Materials Handbook."



Circle No. 72 on Reader Service Card for more information

NEWS VIEWS TRENDS

SHAREHOLDERS OF BUDA TO CONSIDER EXCHANGE OF ASSETS

A special meeting of the shareholders of The Buda Company has been called to consider an agreement and plan of reorganization providing for exchange of all assets of the firm for shares of Allis-Chalmers Manufacturing Company. The plan provides for exchange of all Buda assets for the Allis-Chalmers shares at the rate of one share of Allis-Chalmers common stock for each 2 1/6 common shares of The Buda Company. There are 413,498 Buda shares of common stock outstanding. A letter to approximately 2500 Buda shareholders containing proxies for the special meeting, signed by Stewart S. Hathaway, chairman, and Ralph K. Mangan, president, said Buda directors had unanimously approved the plan. They recommended similar approval by the shareholders "because of the favorable exchange ratio." The Allis-Chalmers board of directors has approved the plan, according to W. A. Roberts, Allis-Chalmers president.

FORMS BUMPER CORPORATION

Max Pollack, who originally operated as an individual designing, pioneering and promoting rubber dock bumpers for use on loading docks, has formed a corporation to be known as BUMPERS, INC. The address is 1875 Forest Hills Blvd., East Cleveland 12, Ohio.

CHAIN BELT BUYS SHAFER

Chain Belt Company of Milwaukee has announced the purchase of Shafer Bearing Corporation for the purpose of broadening the markets for its power transmission products. The new addition will operate as Shafer Bearing Division of Chain Belt Company. No change is made in the management responsibility. R. P. Tennes, former president, becomes division manager; M. J. Tennes Jr., factory manager; H. E. Tennes, sales manager, A. H. Williams, chief engineer; H. R. Lucas, controller; Gordon Terris, director of distributor sales.

CATERPILLAR EXPANDS

Selection of Decatur, Illinois, as the site of a new manufacturing plant has been announced by Caterpillar Tractor Company. Facilities of the new plant will be devoted to the manufacture of motor graders and industrial wheel tractors. L. B. Neumiller, president, also announced the creation of an Engine Division, a new major component of the company. Several separate groups in the company which build engines to special arrangements will now be brought together within the new division.

G. E. ESTABLISHES NEW DEPARTMENT

The establishment of a Direct-Current Motor and Generator Department in the General Electric Company has been announced by James M. Crawford, vice-president and general manager of the G. E. Motor and Generator Division. Oscar L. Dunn, appointed general manager of the new department, which will be located in Erie, Pa., explained that it will assume all duties and responsibilities of the company's former D-C Motor and Generator Planning Study. In addition, the department will have responsibility for the d-c and synchronous motor and generator lines which are now manufactured by the company's Large Motor and Generator Department at Fort Wayne, Ind., and the armored motor line produced at Erie by the Medium Induction Motor Department.



The Strongest Team in its Field

When you need new tires for your industrial trucks, call in your Lift Truck Dealer. He knows trucks and he knows the type Monarch tire best suited for your operation. Choose the Monarch Efficiency Tire for electrics; Monarch General Purpose for Gas Trucks or for extremely severe conditions. Write for illustrated folders.



**THE
MONARCH**

RUBBER COMPANY

550 LINCOLN PARK • HARTVILLE, OHIO
7-255 GENERAL MOTORS BLDG. • DETROIT, MICH.

SPECIALISTS IN INDUSTRIAL SOLID TIRES AND MOLDED MECHANICAL RUBBER GOODS

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AND
NOW-

Out of the Great Comes the *NEW*

With the advanced Diamond "Z" Grid, Gould makes another contribution to storage battery perfection! Here is the most recent achievement of the famous Gould Laboratory . . . one more example of Gould progress through *continuous* battery research.

New research developments make it possible to combine the design advantages of the original Diamond grid and the "Z" grid. The Diamond "Z" gives you the structural design of diamond bracing and overall mechanical strength, and still retains the uniform density of grid members so well achieved in the "Z" design.

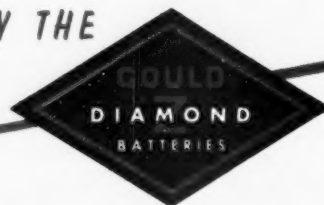
This advance could only come from Gould . . . for only Gould has the experience with both the Diamond grid and the "Z" grid. The Diamond "Z" grid is another step forward in Gould's research program to give you extra battery performance, longer battery life. When you buy, buy Gould!

HERE'S WHAT YOU GET:

1. A grid built to the demands of users with top performance and long life.
2. A grid that has been tested under rugged operating conditions . . . tough day in and day out service.
3. A grid built to meet tomorrow's needs but available today . . . years ahead of requirements.
4. A grid that cannot "grow" under the toughest kind of treatment . . . with that extra measure of strength for every application.
5. A grid that is built with diamond bridge-like construction . . . with extra strong members to withstand abuse.
6. A grid that delivers the rugged service that future demands will require . . . demonstrated in every conceivable test for long, dependable operation.

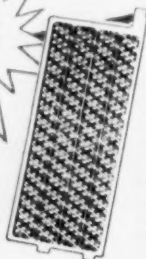
Write for the new Catalog featuring this
amazing grid that delivers more for your money.

TODAY THE



THE DIAMOND GRID

1st



This basic grid design was advanced for its day, highly efficient. For many years, it was the standard by which other batteries were judged.

THE "Z" GRID

2nd

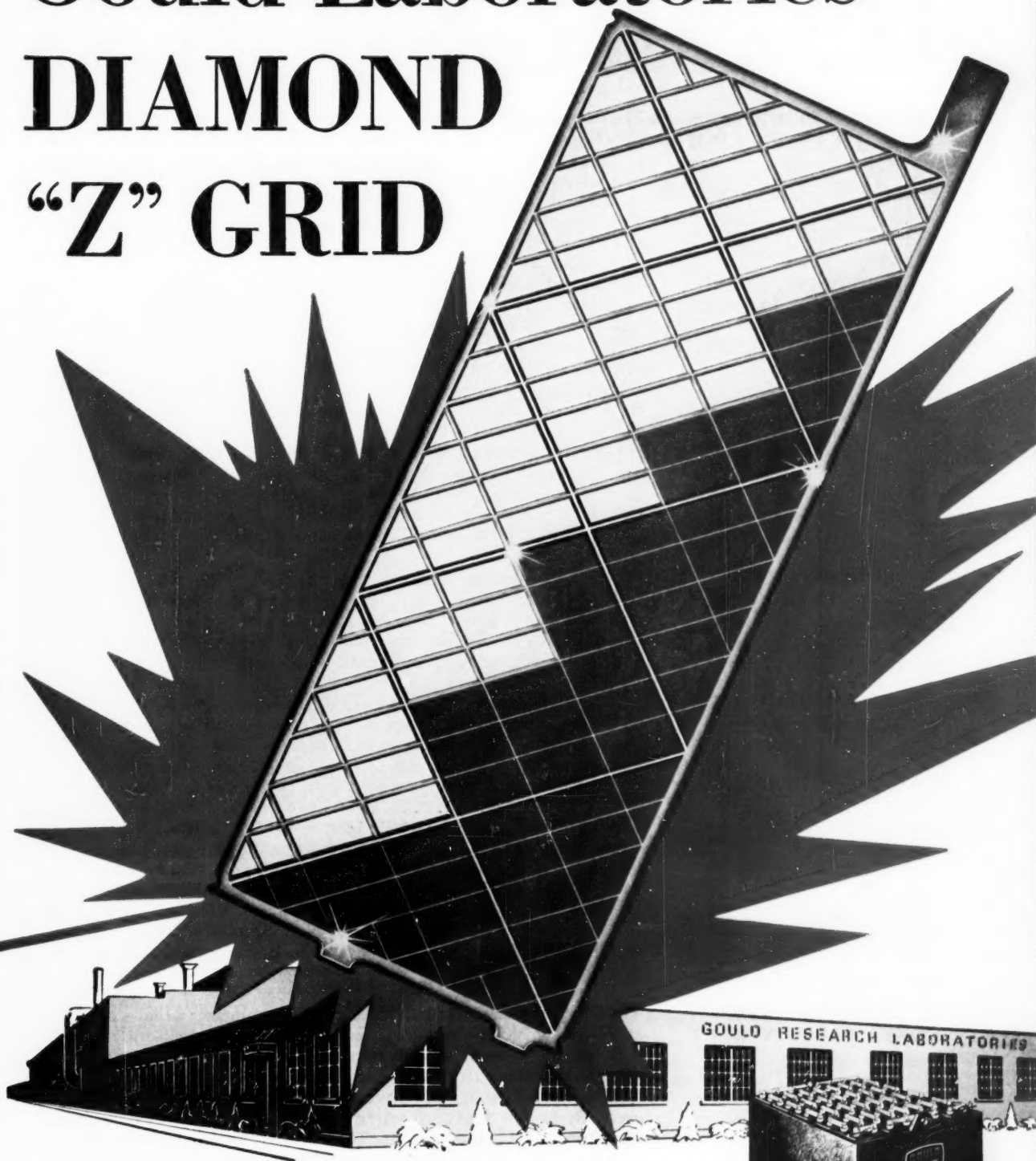


Here was a tremendous advance in battery design. Intensive Gould research produced an improved casting method, which for the first time made possible larger, longer-life grid members.

GOULD

GOULD-NATIONAL

Gould Laboratories DIAMOND "Z" GRID



INDUSTRIAL BATTERIES

BATTERIES, INC., Trenton 7, New Jersey

Always Use Gould-National Automobile and Truck Batteries

Circle No. 64 on Reader Service Card for more information

Specify
The GOULD "THIRTY"
Now, more than ever,
America's Finest
Industrial Truck Battery!

NEWS, VIEWS, TRENDS

Continued

BASSICK PURCHASES K & J CASTER LINE

The Bassick Company has announced the purchase of the industrial caster and wheel line now manufactured by the Kilbourne & Jacobs Company. Bassick has acquired the production tools, inventory of finished goods, and parts in the process of manufacture for Kilbourne & Jacobs casters and certain types of wheels, and will consolidate them into the Bassick line. Trucks and other material handling equipment manufactured by Kilbourne & Jacobs are being sold separately.

HANDLING CLINIC TO MEET IN BOSTON

The second in a series of "Traveling Clinics" on material handling scheduled by The Material Handling Institute will convene October 2 at the Sheraton-Plaza Hotel in Boston at the request of, and in cooperation with, the New England Chapter, American Material Handling Society. The purpose of these clinics is to develop among users a better understanding of the correct application of material handling equipment to industry's most pressing problems.

NEW NAME FOR VISUAL

Homer H. Dasey, president of "Visual" Planning Equipment Co., Inc., has announced a change in corporate name. The new name is "Visual" Plant Layouts Inc. The change was made in the interest of clarity and explanation of the type of business done, and the management, personnel and services remain the same.

SPEEDWAY HIKES PRODUCTION

Speedways Conveyors has moved into a new location at 202-208 Rhode Island Street, Buffalo. Covering approximately 50,000 square feet, this new location provides twice as much space as the plant recently vacated. Manufacture of the company's gravity conveyors and belt conveyors will be increased 100 percent.

MECH. HANDLING ACQUIRES LOUDEN

Acquisition of Louden Machinery Company of Fairfield, Iowa, by Mechanical Handling Systems, Inc., of Detroit, has been disclosed by W. V. Casgrain, MHS President. Purchase price was said to be in excess of \$2,000,000. Casgrain said that addition of the Iowa firm would enable his company to expand its operations in the field of material handling equipment as well as add several new lines to the products now engineered and produced by MHS. The Louden plant will continue to operate in Fairfield. After the signing of papers for the transfer, Casgrain was elected President; W. L. Fry, associated with Louden for many years, was named Vice President and General Manager. Other officers include R. W. Louden, Vice President; A. S. Labagh, Treasurer; and J. G. Barwise, Secretary. These officers, together with Leonard J. Bishop and E. E. Saperston, complete the new Board of Directors.

NATIONAL STARCH GETS QM CONTRACT

The Office of the Quartermaster General has announced that a research and development contract has been awarded to National Starch Products Inc. for the development of an improved adhesive for packaging of Quartermaster items for overseas shipment. The new program calls for an adhesive to be developed which will seal closures on all presently-known types of waterproof barrier materials, case-liners, fiberboards and coated papers. The sealed closures must be able to withstand the effects of exposure to a temperature of -60° F to 165° F, and a relative humidity range from 20 to 90 percent. Also within the scope of the project will be studies to determine the effects of the various treated surfaces of barrier material and fiberboard on the bonding properties of adhesives.

Act now—have a money-saving

B.F. Goodrich

TW
TIRE AND WHEEL

ANALYSIS made in your plant today!



● You can save as much as 50% on industrial tire costs with the money-saving B. F. Goodrich Tire and Wheel Analysis Plan! Call in your local B. F. Goodrich representative today. He's trained to study your materials handling set-up. He knows the kind of industrial tires—the tread compounds and tread designs—that will give the best service at lowest cost in your type of work. He'll recommend these tires to you. And this service costs you nothing, puts you under no obligation.

Industrial tire users across the country have benefited from the recommendations of the B. F. Goodrich Tire and Wheel Analysis man. They have saved up to 20% on *maintenance costs alone* by following the suggestions he makes. Why not find out now how much the B. F. Goodrich Tire and Wheel Analysis Plan can save you!

You can be sure the advice you get from your BFG man will be impartial. He has no axe to grind for any particular type of industrial tire—for B. F. Goodrich makes, and BFG retailers sell, a complete line of industrial tires.

Call your local B. F. Goodrich representative today and ask him to make a free Tire and Wheel Analysis in your plant, or mail the coupon. A special TW Analysis Plan is available for manufacturers of industrial handling equipment.

Specify B. F. Goodrich tires when ordering new equipment



The B. F. Goodrich Company
Department TW-250, Akron 18, Ohio

Please send me:

☐ Additional information on your new Tire and Wheel Analysis Plan

☐ A free copy of your "Industrial Tire Guidebook"

Name _____

Company _____

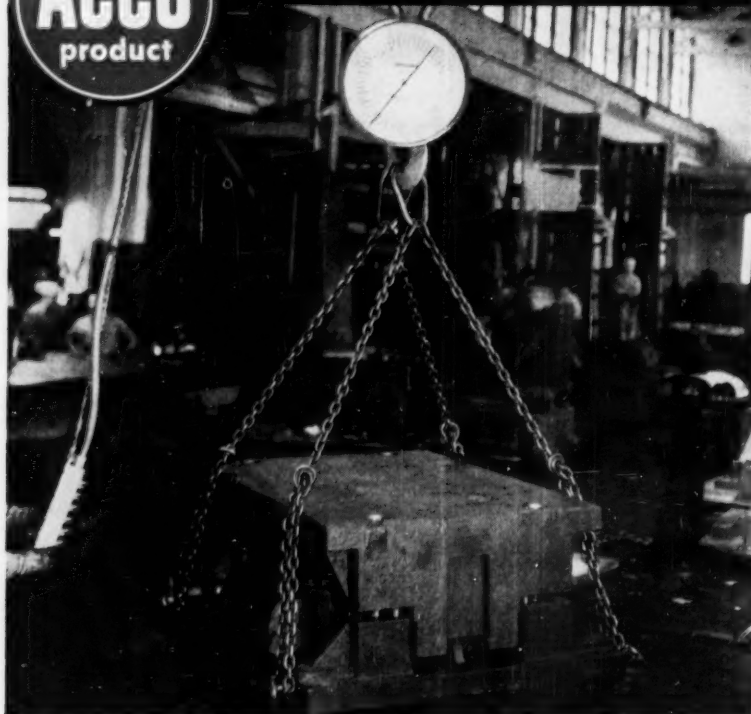
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City _____ Zone _____ State _____

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ENDWELDUR SLING CHAINS



Small AMERICAN Sling Chain Lifts 25,000-lb Load Safely

• This ACCO Registered 4-leg, Endweldur 125 Sling Chain is relatively light in weight yet it has sufficient strength to lift an expensive 25,000-lb die with safety.

This desirable combination of great strength and light weight is the result of scientific heat-treatment of the alloy steel used in this modern chain and the proper combination of engineered hooks and pear shaped links that make up a complete ACCO Registered Sling Chain assembly. This gives you a chain that is easy to handle and safe to use even where working temperatures run up to 1000°F.

• Endweldur 125 ACCALLOY Sling Chains come in sizes from 1/4" to 1 1/4" with working load limits to 57,500 lbs per leg, so there is a size for just about every lift you have. Other AMERICAN Sling Chains are available in Endweldur 85 made of carbon steel heat-treated . . . also stainless steel, monel metal and silicon bronze . . . and wrought iron.

**AMERICAN has a sling chain for your every need.
See your distributor or write our York, Pa. office today
for the ACCO Registered Sling Chain Catalog.**

ACCO



**AMERICAN CHAIN DIVISION
AMERICAN CHAIN & CABLE**

York, Pa., Atlanta, Chicago, Denver, Detroit, Los Angeles,
New York, Philadelphia, Pittsburgh, Portland,
San Francisco, Bridgeport, Conn.

**American
Chain**

Circle No. 7 on Reader Service Card for more information.

HIGHLIGHTS of the month's NEWS

IT'S been just about a year since the Materials Management Center was established at Wayne University, Detroit—and that ambitious project already has saved thousands of dollars for Detroit business and industry.

How was it started? A group of Detroit executives foresaw that the best and fastest way to better materials management would be through the establishment of a center which could provide research, testing and training facilities.

The executive group, headed by such men as Del S. Harder of Ford Motor Company, Harvey Campbell of the Detroit Board of Commerce, and Herbert O. Horning of Chrysler Corporation, formed a committee and asked Wayne to establish such a center. Promised financial support, Wayne (which already had done some pioneering work in the field) agreed and named one of its top professors, Dr. Spencer A. Larsen, to direct the new program.

Idea Becomes Reality

Instructors, most of whom had had previous teaching experience, were recruited from professionals who had reached the top in their respective fields.

Commercial and industrial firms not only provided financial support, but generously loaned both men and equipment. Ford Motor Company's staffs in plant engineering, purchasing and production programming and control assisted with instruction in automation of material handling and production control. The General Motors Corporation staff in material handling and packaging helped with instruction on materials management and product preservation.

Evans Products Corporation, Fruehauf Trailer Company and

New York Central Railroad gave special aid in developing units of instruction in loading rail freight cars, highway trucks, ships and planes. Operations men at J. L. Hudson assisted with courses on warehousing and automatic control of commercial processes. Traffic representatives of the Detroit Board of Commerce, together with traffic managers, fashioned a course in industrial traffic. McCarthy-Root, Inc., made available its expert staff and modern plant facilities for courses in package development and product preservation.

Facilities for package testing and load utilization were given to the Center by Acme Steel Company. Many other firms and organizations made notable contributions to the successful establishment of the unique university department.

The Center Grows

The actual training program, offering ten courses, was launched in September, 1952. A total of 273 men, representing 37 companies, enrolled. Many of the men had had years of experience in the field, but welcomed the chance to enlarge their background with comprehensive training. Six courses were added in the second semester, and enrollment climbed to 629, from more than 150 firms.

This year's program, twice as extensive as last year's, will include 37 courses which can merit a certificate of attainment in various fields, or a newly-created degree in material handling engineering. The degree program is accredited by the Engineers Council for Professional Development.

Says Dr. Larsen, "The outlook for the continued growth and expansion of the Center is excellent. Prior to its establishment, no formal training facilities were available. Men went on the job 'green', and picked up what they could as they went along. Now they not only have a fundamental knowledge of proper material handling, but bring with them ideas for improvement."

"Even though we were established locally, we can look forward to serving the entire nation."

We're sincerely looking forward to it, too, Dr. Larsen.



Wright Speedway Hoists

Why WRIGHT Speedway Hoists Require Less Servicing...



• 5 key features of WRIGHT Speedway Hoists mean longer life and less servicing. These features are heat-treated and surface-hardened alloy steel gears, hard alloy silver electrical contacts in controller, heavy duty crane type safety limit stop, automatic multiple disc load brake and ball bearing gear shafts.

And there are other features which add further to the fine service you get from a WRIGHT Speedway Hoist. For instance—grooved cable drum, improved plow steel preformed cable, concealed motor wiring, and completely enclosed, ventilated housing weather-proofed for permanent outside use. Ball and roller bearings seldom require additional lubricant. Gear train is sealed in oil bath chamber.

You can get standard lift, long lift, or close headroom WRIGHT Speedway Hoists in capacities from 1/4 to 10 tons—all with these same quality features. See your local WRIGHT distributor or write our York office for DH-133-A. WRIGHT will save you money.

ACCO



WRIGHT HOIST DIVISION
AMERICAN CHAIN & CABLE

York, Pa., Chicago, Denver, Detroit, Los Angeles, New York,
Philadelphia, Pittsburgh, San Francisco, Bridgeport, Conn.

WRIGHT
Hoists
Trolleys
Cranes

Circle No. 8 on Reader Service Card for more information.

Here's how to plot a plane's Angle-of-Climb...

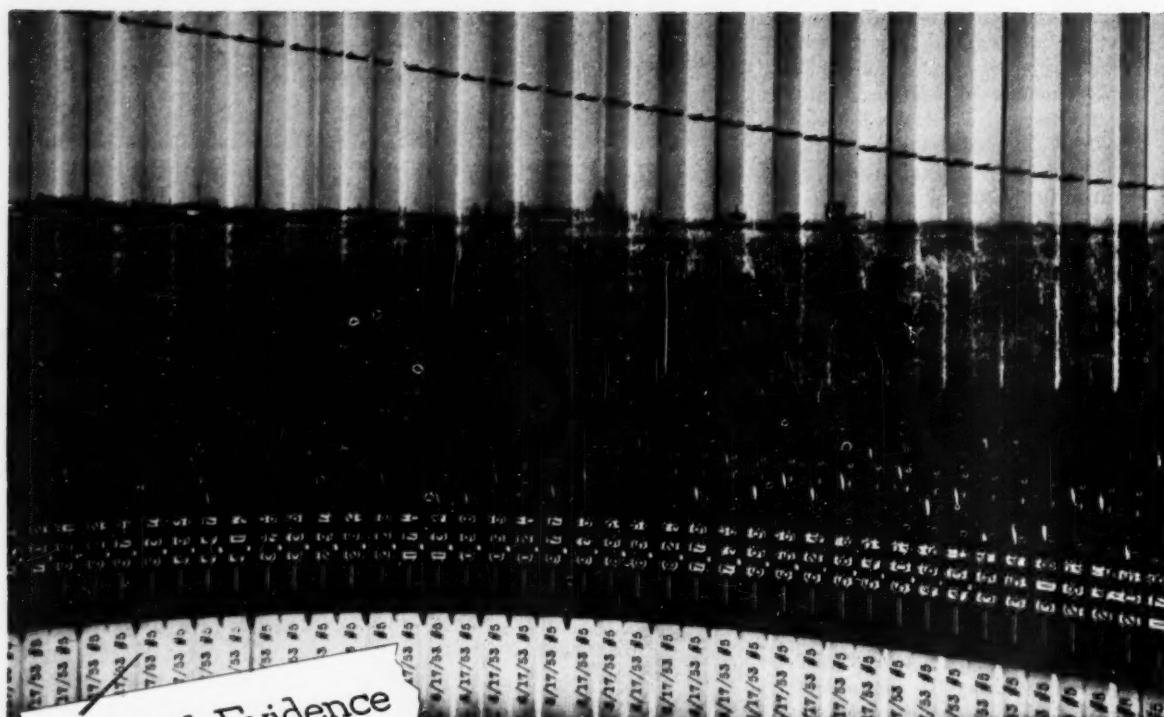


Photo by Sherman Fairchild & Associates' Flight Analyzer Camera,
New York City

Everyone Can Count on VEEDER-ROOT

New take-off technique yields an 8° climb, as this progressive *single photo* shows. And this is 100% improvement over old techniques . . . increasing safety and decreasing noise-annoyance at city airports.

Here you actually see 53 separate exposures. And each, reading from bottom up, shows the date and number of the flight photographed. Next above is a device which records the time . . . exact to 1/1,000th of a second. And in the heart of this device is a Veeder-Root Counter.

So here again you see one of the heretofore uncounted ways in which "Everyone Can Count on Veeder-Root". What's *your* problem? Let us put our mathematical eyes on it. Write:

VEEDER-ROOT INCORPORATED
HARTFORD 2, CONNECTICUT

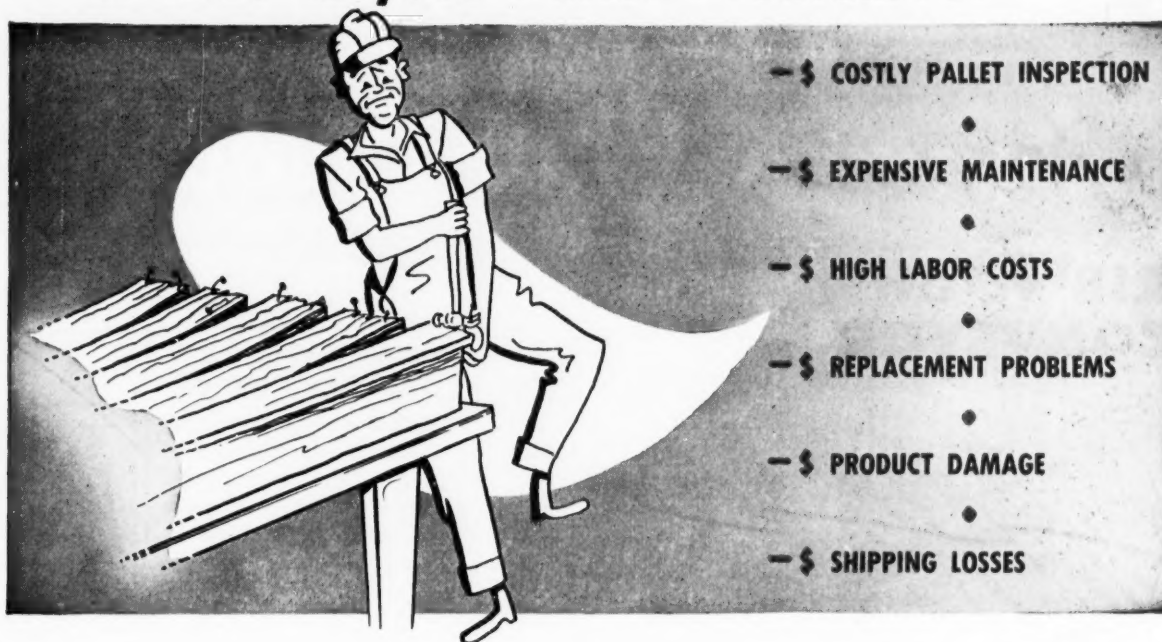
Chicago 6, Ill. • New York 19, N. Y. • Greenville, S. C.
Montreal 2, Canada • Dundee, Scotland
Offices and Agents in Principal Cities



'The Name that Counts'

Circle No. 136 on Reader Service Card for more information

If THIS is your Pallet Problem...



Then HERE is your Answer...

+\$ NO WEAR PROBLEM

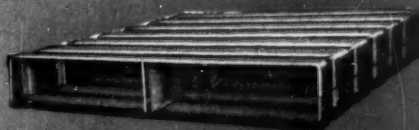
+\$ NO INSPECTION NEEDED

+\$ MAINTENANCE ELIMINATED

+\$ MINIMUM REPLACEMENT

+\$ PRODUCT PROTECTION

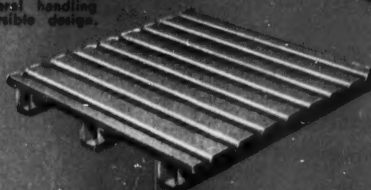
+\$ YEARS OF EXTRA LIFE



Style 110-A is an extremely popular general handling unit of reversible design.



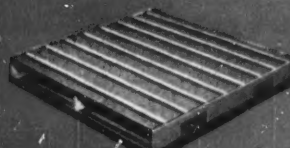
Style 115 is a special roller conveyor transfer pallet designed to fit over conveyor docks.



Style 112 is a single faced pallet for handling bags, drums, bagged materials, etc.



Style X-100 is the famous Powell Nesteel® nesting, stacking pallet.



Style 117—reversible, four-way pallet available in solid or slatted or combination dock.



**THE POWELL PRESSED STEEL COMPANY
HUBBARD, OHIO**

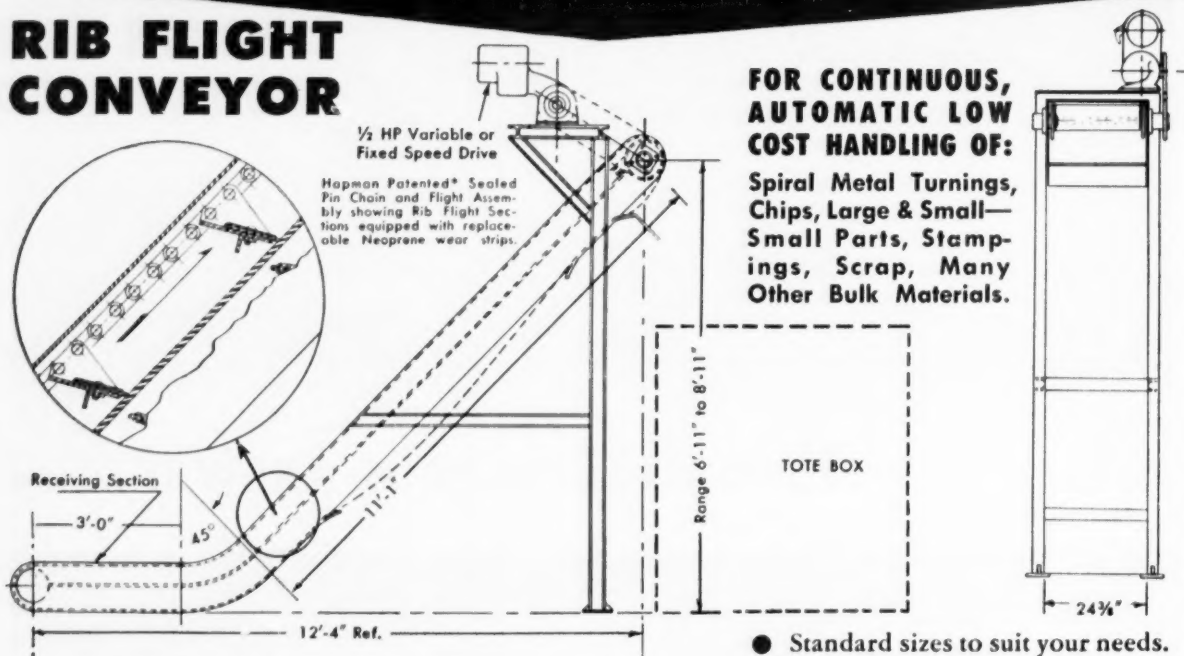
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CUT HAND LABOR COSTS

MECHANIZE WITH

Hapman Chip-O-Matic

RIB FLIGHT CONVEYOR



Size can be altered for special applications.

Shipped completely assembled ready for electrical connection at your specified voltage.

FACTORY TESTED AND GUARANTEED



WRITE FOR DETAILS.
F-1053

FOR CONTINUOUS, AUTOMATIC LOW COST HANDLING OF:

Spiral Metal Turnings, Chips, Large & Small—Small Parts, Stampings, Scrap, Many Other Bulk Materials.

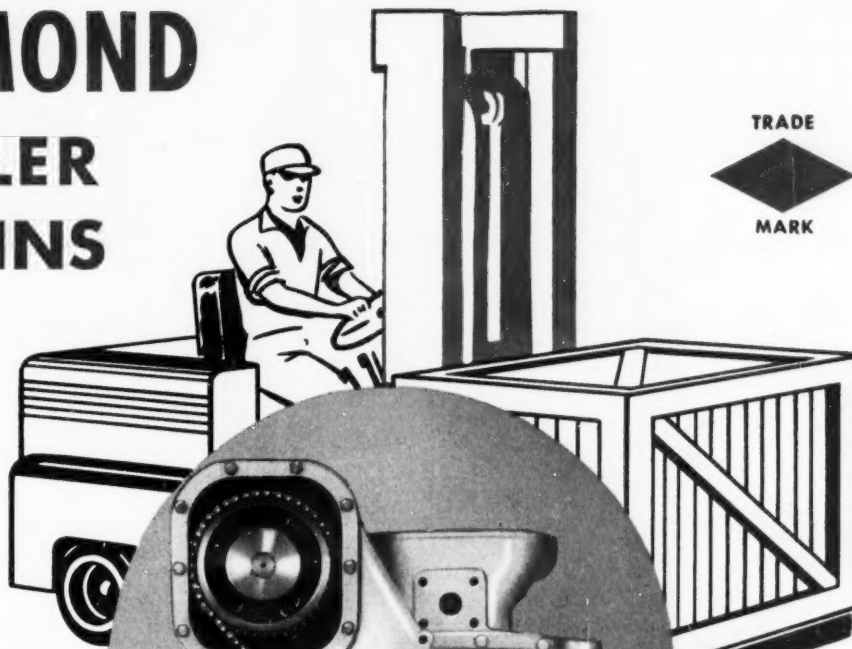
- Standard sizes to suit your needs.
- Simple, dependable design — a minimum of parts.
- Rugged welded steel construction for rigidity.
- Choice of 1/2 H.P. fixed or variable speed drives.
- No chain take-up required.
- Adaptable for removal of above listed materials from coolant tanks without loss of coolant.
- Designs available for long distance above-or-below-floor conveying and also for adaptation as original equipment design for machine tool builders.

*Patent Nos. 2,400,502, 2,607,469

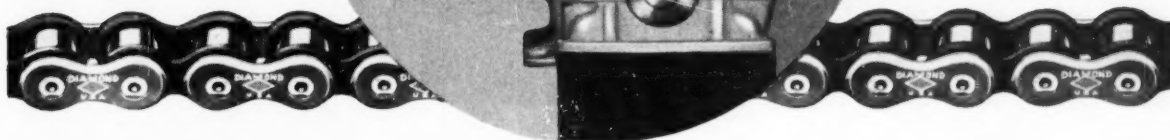
Hapman CONVEYORS, INC.
DIVISION HAPMAN-DUTTON COMPANY
KALAMAZOO MICHIGAN

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DIAMOND ROLLER CHAINS



Cutaway view shows Diamond Chain hydraulic pressure drive and fuel pump drive on Hercules engine as used on Lift Truck.



Ideal For Hydraulic Power Pump Drives

ENGINE DRIVE DATA

Hercules Diesel engine D00, four cylinder and gas engine QXLD-3 six cylinder have:— Diamond Double No. 66 Roller Chain from crankshaft to pump shaft. Single No. 66 for fuel oil pump drive.

SHOT-PEENING SINCE 1944
Diamond Chain has long recognized that certain types of internal stressing of chain parts would increase fatigue resistance. To this end, link plates have been specially processed and chain rollers and other parts have been shot-peened since 1944.

PITCH HOLE PREPARATION
Maximum rigidity of links insured by special pitch hole preparation for 100% effective bearing area of pin and bushing. Longer life, smoother operation.

The simplicity of application and long-life high efficiency and reliability of Diamond Roller Chains are well demonstrated on the Hercules engine drives for hydraulic pressure and fuel oil pump operation.

As applied to lift trucks, the hydraulic drive has been used for both steering and lifting since 1951 on both Diesel and gasoline engine equipped trucks. Diamond Chains offer many specific advantages, the operation is positive and non-slipping, extremely quiet, and thoroughly dependable.

For practical recommendations concerning engine pump, timing and take-off power drives, Diamond experienced engineering staff is at your service.

DIAMOND CHAIN COMPANY, Inc.

Where High Quality is Traditional

Dept. 624, 402 Kentucky Ave., Indianapolis 7, Indiana

Offices and Distributors in All Principal Cities

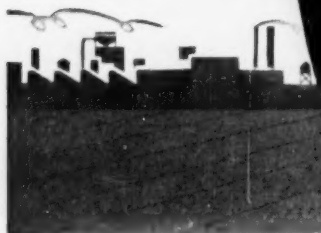
Please refer to the classified section of your local telephone directory under the heading CHAINS or CHAINS-ROLLER

DIAMOND  **ROLLER CHAINS**

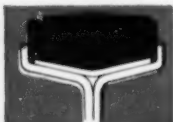
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AT LAST!
something
REALLY
NEW in
industrial
wheels...

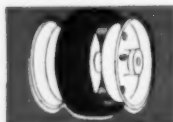
Rapistan's
MB



The first STEEL BASED rubber tire demountable wheel



Live rubber tread is bonded for life to band of steel. Cannot slip, stretch or creep. Neoprene available at no extra cost.



Just four bolts to loosen for tire replacement. One-piece hub assembly with felt-sealed roller bearings, extra-large grease reservoir, steel hubcap.

Now it's a fact. A tested fact! A demountable wheel with a thick, live rubber tire *bonded to a band of steel!* A wheel that gives you the performance of a molded-on rubber type ... the quality of a high-priced pressed-on industrial type ... and the economy of a demountable type wheel.

Your savings add up to 30%

Twice in a row Rapistan's new MB wheel saves you money. First, it costs about 10% less than the average molded-on wheel. Second, you save money on replacement when the tire is worn. You don't discard the wheel. You don't ship it back for retread. You simply replace its steel-bonded tire quickly and inexpensively. Result—a whopping 30% saving compared to molded-on rubber wheels.

Proved beyond 28 doubts!

Grueling laboratory "punishment" tests, and comparative service tests conducted for six months in 28 leading plants have proved the Rapistan MB is it—superior beyond doubt. The results of these tests are yours for the asking. Write for the facts and judge for yourself.

SEND ME PROOF

—Send me test results and comments of fast-users concerning the MB Wheel. Also specifications and prices on sizes now available.

Rapistan®

FASTEST GROWING NAME IN CASTERS
Representatives in Principal Cities

The RAPIDS-STANDARD CO., INC.
88 Rapistan Bldg., Grand Rapids 2, Michigan

Name _____
Firm _____
Address _____
City _____ Zone _____ State _____

Circle No. 110 on Reader Service Card for more information.

MEN
in the news

... at Hinde & Dauch Paper Co.

One hundred years of service is represented by two veteran employees who were awarded 50-year pins recently by company president, **Charles E. Frohman**. **Henry M. Ulmer**, maintenance man, and **Harry W. Abele**, production expeditor, each began his career in 1903 at the Sandusky, Ohio, plant. They bring the total to 14 employees who have won the distinction.



Left to right: Charles E. Frohman, Henry M. Ulmer, Harry W. Abele

... at Evans Products Co.

E. S. Evans Jr., president, has announced the appointment of **Donald R. Ward** as assistant to the president. Before assuming his new duties, Ward was director of manufacturing schedules at the Evans Co. He joined the firm in 1949 after previous associations with Burroughs, Lockheed, Wright Aeronautical and Kaiser-Fraser.



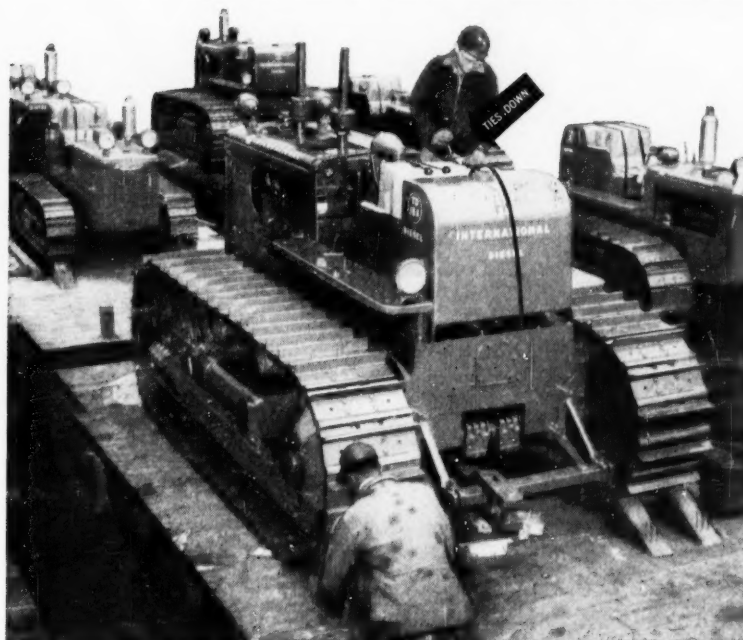
D. R. Ward

... at Colson Corp.

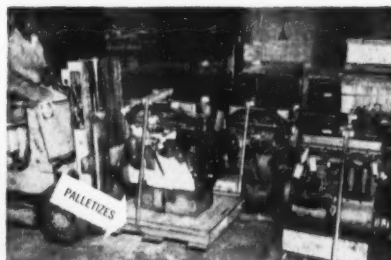
J. Edgar Glass, general manager and executive vice presi-

Acme Steel Strapping Insures S.A. *(Safe Arrival)*

**Secures tractor parts for long-distance hauling
... saves time and trouble for International Harvester**



STRAPPING ON A TRACTOR. When International Harvester ships crawler tractors on open railroad flatcars, Acme Steel Strapping ties tool boxes, lubrication equipment and seat cushions in place for the journey.



SOLE SUPPORT for these IH Diesel engines is one Acme Steelstrap per engine. It secures the engine to a pallet for easy handling.



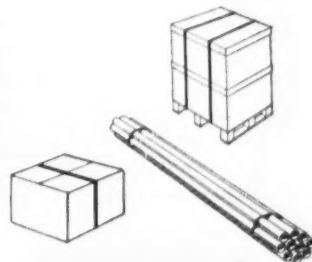
4,000 POUNDS of tractor dashboards are bundled together with Acme Steel Strapping for delivery from one International Harvester plant to another.

Whenever you receive anything secured with Acme Steel Strapping, you know that the shipper has taken care to get it to you safe. He has also beat the threat of damage-in-transit and has cut the cost of packing and shipping, too.

Acme Steel Strapping does all these things. It makes packing and loading easier and faster. It provides better protection during shipment, and

helps insure S.A. (Safe Arrival).

Almost certainly, Acme Steel Strapping or Acme Steel Stitching Wire methods can help somewhere in your operation. If you have any kind of a shipping or materials-handling problem, we may have just the idea you need. Write Acme Steel Products Division, Dept. F-103, ACME STEEL COMPANY, 2840 Archer Avenue, Chicago 8, Illinois.



**ACME
STEEL**

STRAP IT... STITCH IT... SHIP IT... SAFELY!

Circle No. 2 on Reader Service Card for more information

"I thought I was TOUGH

**Until I Started
Buying Those
LONGER
LASTING**

BUFFALO *Conveyor* **BELTS"**

"Being a Purchasing Agent all my working life, I thought I at least knew something about being tough, buying tough and finding products that were tough. My first experience with Buffalo Conveyor Belts was a completely NEW experience for ME and it will be for you!"

They're made TOUGHER! Buffalo Conveyor Belts are made from the toughest cotton yarn available on the market. *They're woven TIGHTER* by our exclusive *W'or-In-W'ear* weaving process on our own specially-designed looms. *They last LONGER!* Tougher yarns and tighter weaving naturally mean longer life for any Conveyor Belt. However, you never pay a premium for any Buffalo Conveyor Belt . . . just the regular established price! Yet

users tell us they last years longer. Ask your mill supply man to show you the difference!

**for conveying FROZEN FOOD
or METAL PARTS we feature
PARAFFIN TREATED belts**

If you must convey items that have a tendency to stick to the belt, such as packaged cheese, frozen food, small machine parts, etc., this Paraffin Treated Belt will suit you to a "T". Odorless, water-proof, this clear-colored belt is ideally suited for slide bed operations; long lived and economical.

*Write for
FREE FOLDER*

14 pages of sizes, types and prices



**OVER
200 SIZES
35 WIDTHS
7 THICKNESSES**

BUFFALO WEAVING & BELTING COMPANY

209 CHANDLER STREET

BUFFALO 7, NEW YORK

NEW YORK PHILADELPHIA CHICAGO DETROIT LOS ANGELES

Circle No. 24 on Reader Service Card for more information

MEN IN THE NEWS

Continued

dent of the company, has been named president to succeed **Neely Powers**, who retired recently. Powers will remain, however, as a member of the board and will serve in an advisory capacity. Following the sale of the company last spring to the Pritzker Bros., of Chicago, **Robert Pritzker** was named vice president in charge of manufacturing.

... at Lewis-Shepard Co.

The appointment of **W. L. Sheffield** to the post of chief engineer has been announced by **F. J. Shepard Jr.**, treasurer and general manager of the firm. Sheffield brings with him 22 years of engineering experience.



W. L. Sheffield He formerly was chief engineer of the development and research section of Anderson-Nichols & Co., well-known Boston consultant engineering firm.

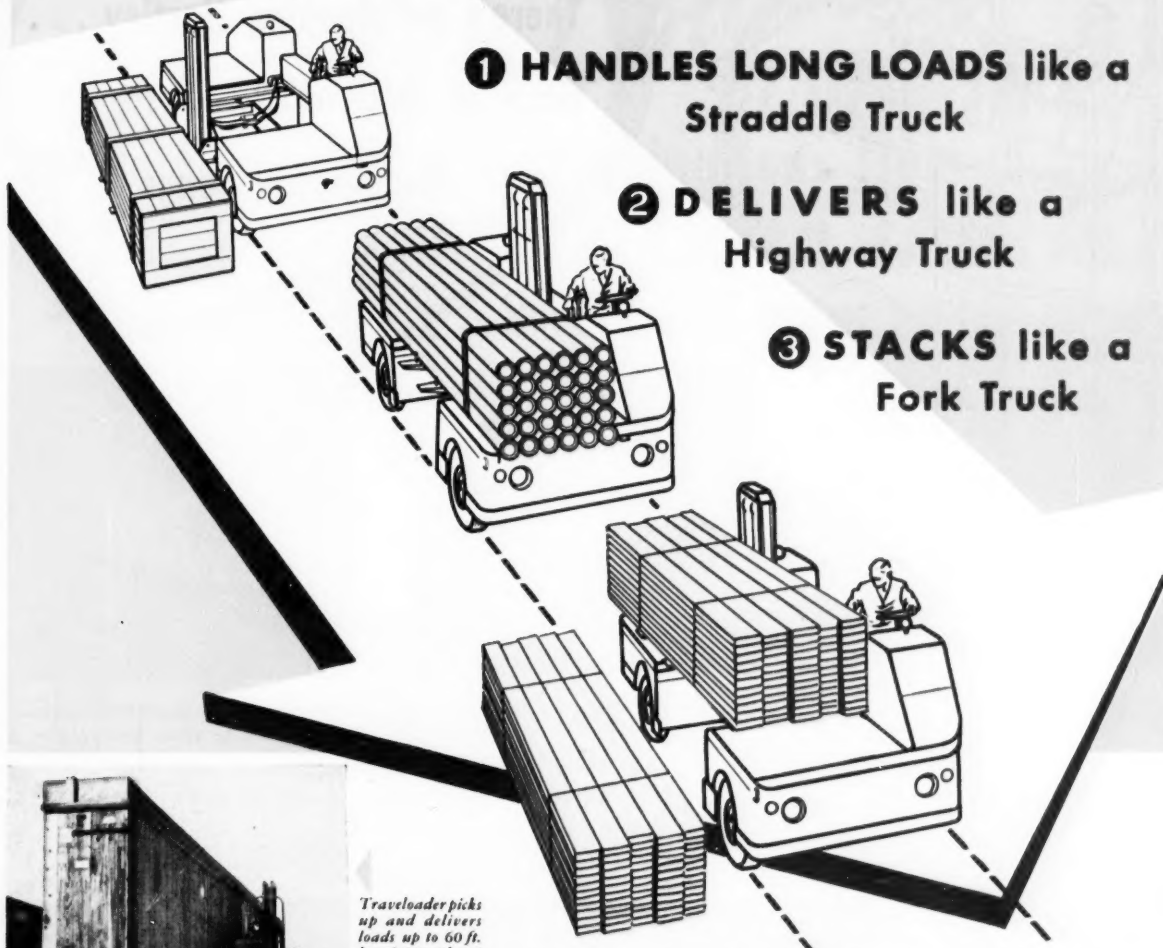
... at Forker Corp.

Virgil E. Slater has become sales manager, according to a recent announcement by **J. Bentley Forker**, president. Previously, Slater was associated with Industrial Crane & Hoist Corp., and at one time operated his own material handling equipment sales office in St. Louis, known as the Slater Engineering Co.

... at Chain Belt Co.

Two executive changes have recently been announced. **J. C. Merwin** has been elected by the board of directors to the position of chairman of the board. **L. B. McKnight** was elected to succeed Merwin as president and chief executive officer of the company.

Only Traveloader



① HANDLES LONG LOADS like a Straddle Truck

② DELIVERS like a Highway Truck

③ STACKS like a Fork Truck



Traveloader picks up and delivers loads up to 60 ft. long (upper photo)

Traveloader can operate in 10 ft. aisles and stack up to 12 feet.



Traveloader's unique ability to pick up loads from the side, carry them lengthwise and unload or stack them from the side, opens up an entirely new field in mechanized handling of long, unwieldy or bulky loads.

Thus this one machine, operated by one man, often replaces two or three handling units now used on such jobs. The cost savings are obvious.

It offers many other advantages. Weight is distributed equally over four wheels, permitting heavy load handling on floors or ground conditions not practical for other devices. It can stack up to 12 ft. from 10 ft. aisles. It can handle palletized or unpalletized loads with forks, or loads in a sling with a crane attachment. It delivers loads at speeds up to 30 MPH.

Write for descriptive bulletin containing action photographs, construction details and specifications.

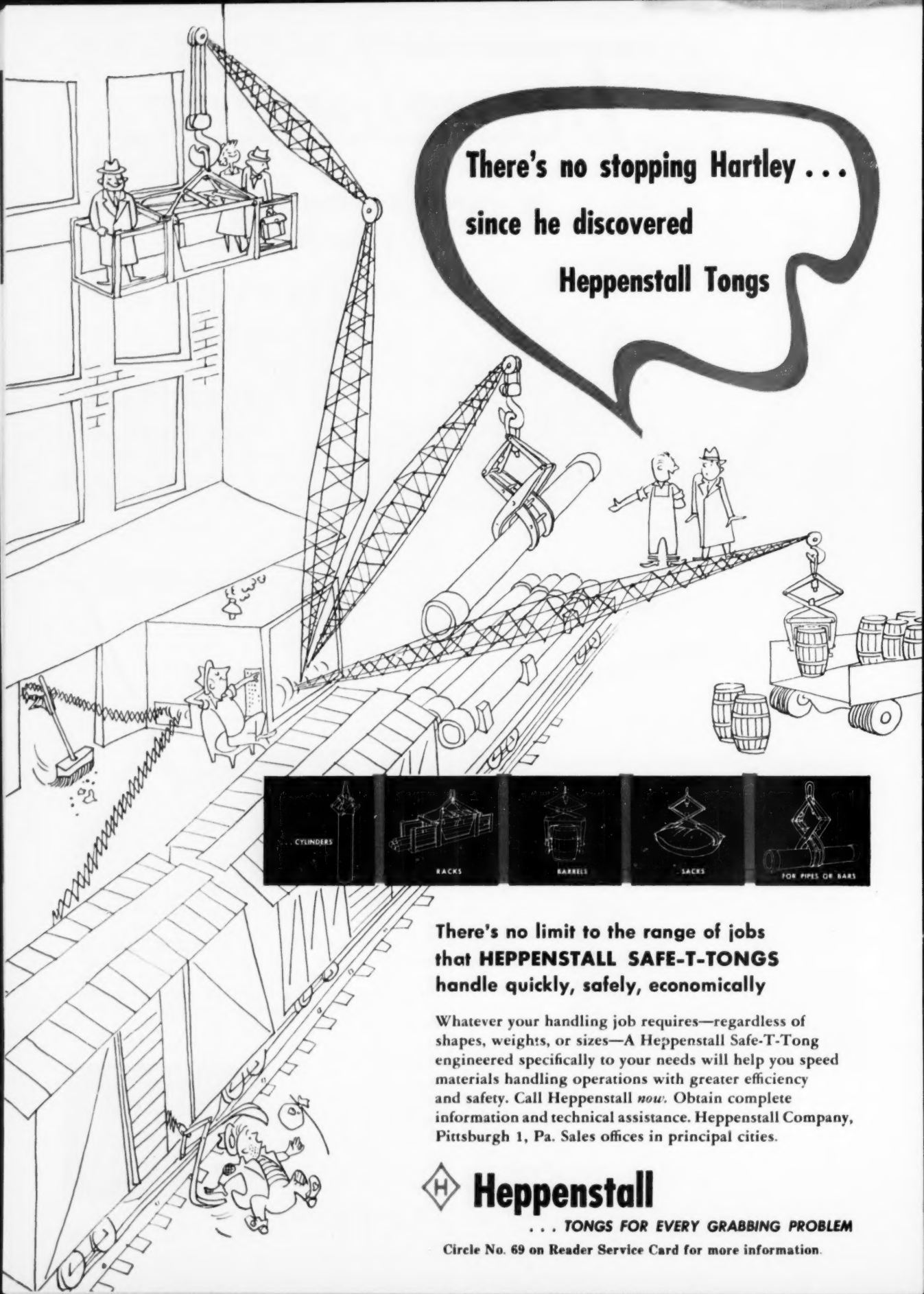
THE BAKER-RAULANG COMPANY
1219 WEST 80th STREET • CLEVELAND 2, OHIO

*The Baker-Lull Corporation, Subsidiary, Minneapolis, Minnesota,
Material Handling and Construction Equipment*

Baker

industrial trucks

Circle No. 13 on Reader Service Card for more information



There's no stopping Hartley . . .
since he discovered
Heppenstall Tongs



There's no limit to the range of jobs
that **HEPPENSTALL SAFE-T-TONGS**
handle quickly, safely, economically

Whatever your handling job requires—regardless of
shapes, weights, or sizes—A Heppenstall Safe-T-Tong
engineered specifically to your needs will help you speed
materials handling operations with greater efficiency
and safety. Call Heppenstall *now*. Obtain complete
information and technical assistance. Heppenstall Company,
Pittsburgh 1, Pa. Sales offices in principal cities.



Heppenstall

. . . TONGS FOR EVERY GRABBING PROBLEM

Circle No. 69 on Reader Service Card for more information.

Count 'em!

67 LOAD-SPAN combinations from

13 OHIO BEAMRAIL SIZES FOR

ECONOMICAL, SAFE TRAMRAIL AND CRANE INSTALLATIONS



Beamrail track flanges are flame hardened to resist wiping action of trolley wheels.



Gauging operation checks rail web to the track flange for symmetry.



A snap gauge is used to check track for uniform width.

The concentrated Load-Span Chart below illustrates how economically Ohio Beam Rail may be selected to meet specific load requirements for your plant.

CAT.No.	2604	2560	2608	2609	2610	2611	2612	2613	2614	2615	2616	2617	2618
SIZE (in.)	6.00x4	6.25x4	8x5.25	10x5.75	12x6.5	10x8	14x6.75	16 x 7	12 x 8	14 x 8	16x8.5	16x11.5	18x11.75
WT.(lbs.)	11.3	15.0	17.5	21.5	22.7	26.1	26.7	30.6	31.8	34.56	46.7	64.0	72.1
ST(in. ³)	5.95	8.7	11.98	17.6	20.3	18.2	30.0	35.5	26.96	33.5	50.8	64.9	79.8
SC (in. ³)	7.65	9.89	15.80	24.3	33.45	30.44	43.39	50.10	44.74	54.05	81.67	129.3	153.761
SPAN(ft.)	MAXIMUM SAFE CONCENTRATED LOAD IN POUNDS FOR SIMPLE BEAM LOADING ON THE BOTTOM FLANGE												
8	5540	8040	11130	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
12	3650	5310	7370	10871	12564	11224	.....	.....	.....	.....	.....	.....	.....
16	2500	3810	5459	8078	9318	8291	13786	.....	12246	.....	.....	.....	.....
20	1530	2440	4293	6386	7374	6539	10983	13709	9683	12155	.....	.....	.....
24	.....	.....	2890	5242	6078	5387	9130	10722	7969	10016	.....	.....	.....
28	.....	.....	.....	3959	5130	4185	7626	9070	6715	8467	.....	.....	.....
32	.....	.....	.....	.....	4386	3083	6523	7839	5761	7288	11153	.....	.....
36	.....	.....	.....	.....	.....	2291	.....	.....	4427	6349	9760	12400	.....
40	.....	.....	.....	.....	.....	.....	.....	.....	3412	5010	8565	10900	13460
44	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9650	12010
48	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7900	10670
52	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6250	9420
56	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4900	7780

Maximum Stress = 22,500 lbs. per sq. in. for high carbon steel.
Maximum Compression Stress = 17,000,000 / $\frac{10}{11}$ when $\frac{10}{11}$ exceeds 600.

Maximum Deflection = 1/300 of span.
Maximum L/b = 60 for Ohio Beamrail Sections only.

Circle No. 171 on Reader Service Card for more information



AFTER ONE YEAR on the floor of this warehouse, "Scotch" Plastic Tape looks as good as when it was first applied (above)!

FAST! No drying-time when you mark lanes with tape!

...and tape lasts 5 times longer!



CARL JANNE

Carl Janne, storekeeper, New York State Electric & Gas Co., Elmira, N. Y., writes: "After one year, the lanes we marked with 'Scotch' Plastic Tape look nearly as good as the day we put them down. For my money, this tape is the way to mark off lanes in any warehouse. It goes down fast, and continues to look good after hard use."

No wonder "Scotch" Plastic Tape is faster and easier to apply! There's no drying-time to slow down operations—no special equipment

needed. Just put it down and roll it in place. Adhesive sticks *tight* at a touch. And the more you walk on it, the *tighter* it sticks.

And no wonder this tough tape lasts 5 times longer than conventional materials! The abrasion-resistant plastic backing isn't affected by acids, oils, greases, alkalies, water, salts and common solvents.

Try it yourself and see! Available in eight easy-to-match colors, many widths. For more complete information, write us on your letterhead, Dept. F-103, St. Paul 6, Minnesota.



The term "Scotch" and the plaid design are registered trademarks for the more than 200 pressure-sensitive adhesive tapes made in U.S.A. by Minnesota Mining & Mfg. Co., St. Paul 6, Minn.—also makers of "Scotch" Sound Recording Tape, "Underseal" Rubberized Coating, "Scotchlite" Reflective Sheeting, "Safety-Walk" Non-slip Surfacing, "3M" Abrasives, "3M" Adhesives. General Export: 122 E. 42nd St., New York 17, N. Y. In Canada: London, Ont., Can.

Circle No. 97 on Reader Service Card for more information.



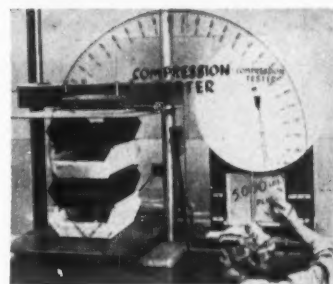
What's

NEW in equipment

"Torture-Tested" Tote Pan

The "RAN-tote 877", stacking-nesting tote pan manufactured by Randolph Metal Products Company, has undergone laboratory "torture tests" to determine the extent of abuse that the pan can withstand without distortion to the pan or damage to the contents. The test shown here involved the use of a high-compression testing machine which duplicated 5000 pounds of pressure applied against four stacked pans, with no apparent damage. The steel pan weighs 10 pounds, measures 6 inches by 12 inches by 24 inches.

Circle No. 175 on Reader Service Card for more information



Hand Hydraulic Truck

The hand hydraulic pallet lifting truck of American Matling, Inc., lifts by means of a dual acting hydraulic pump. Although of robust construction it is said to allow maximum maneuverability. The handle drops for pulling or locks upright for pushing. The approximate weight is 275 pounds. The standard widths of the forks are 22 inches, and 27 inches for a pallet 48 inches or over. The standard fork length is 34 inches; the height of the forks when lowered is 3 1/4 inches and when raised 7 1/4 inches. The truck is said to be able to turn a load in an areaway equal to the diagonal of the pallet load.

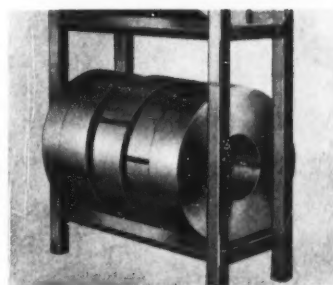
Circle No. 176 on Reader Service Card for more information



Coil Stock Racks

New coil stock racks in practical dimensions for handling and storing all sizes of wire and strip coils are announced by the Rack Engineering Company. Made and ordered in single units, the racks may be stacked to ceiling heights for maximum use of floor space. Extra-high tiering is made possible by welded reinforced tubular construction, in creasing rack life and safety. The racks may be handled by crane or truck. Safety crane eyes and cross bars are optional.

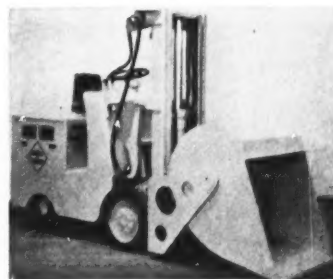
Circle No. 177 on Reader Service Card for more information



Fork Truck Scoop

A scoop attachment, designed for use on any of its hydraulic-powered fork trucks, has been developed by the Elwell-Parker Electric Company. Specifically designed for handling such bulk materials as fine coal, salt, sulphur, grain, etc., it is not intended for material with large lumps. Its hydraulic power comes from the same system which operates the lift and tilt on the vehicle. It is 37 3/8 inches in overall width, with a capacity of 25 cubic feet and 3200 pounds. The scoop has anti-friction bearings supporting the trunnions and a double-acting hydraulic cylinder that moves the unit from loading to the carrying position.

Circle No. 178 on Reader Service Card for more information

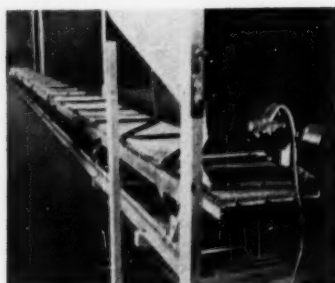




Gas Truck with Magnet

A 6,000-pound capacity lifting magnet on a gooseneck boom is carried by a new truck announced by the Yale Materials Handling Division of the Yale & Towne Manufacturing Company. The truck is especially adapted for the handling of castings and cast iron and steel borings. It mounts a 36-volt power unit to supply the current energizing the magnet. The magnet can be hung at any of four different positions. The hook capacity varies from 4,700 pounds at a 36-inch outreach to 3,000 pounds at 72. Fingertip controls for raising the load and energizing the magnet are within easy reach.

Circle No. 179 on Reader Service Card for more information



Vibrating Conveyors

Materials that must be transported within a closed housing and not readily handled by belt, screw or other types of conveyors are carried by The Gifford-Wood Company's new line of special vibrating conveyors. The conveyors oscillate with a continuing series of forward-and-up and downward-and-back movements. The number of vibrations per minute and the forward throw are critical factors in handling different materials. Gifford-Wood offers test facilities to determine the correct vibration-throw relationship for given materials.

Circle No. 180 on Reader Service Card for more information



Trench Hoe Boom

Optional heavy duty trench hoe boom for its excavators is announced by Gar Wood Industries, Inc., Findlay division. Designed for extra-rugged excavation, cross country pipeline work and similar operations, the boom weighs 8500 pounds. It is removed for conversion to shovel, crane, drag line, clam shell, pile driver and foundation borer attachments for three crane models.

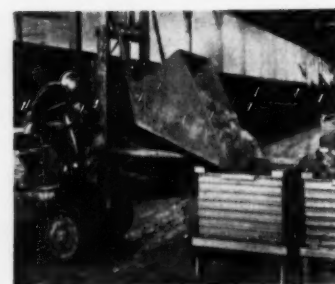
Circle No. 181 on Reader Service Card for more information



More Power; Less Space

Low lift "walkie" truck with short head room and capable of handling loads up to 6,000 pounds is announced by Lewis-Shepard. It is powered by a new compound-wound traction motor that is said to give controlled speed on level floors and extra power on ramps. With two speeds forward and reverse all controls are in the handle. Designed for easy maintenance, the truck has only two lubricating points on the pallet model and none on the platform model. All bearings are sealed and lubricated for the life of the truck.

Circle No. 182 on Reader Service Card for more information



End-Loading Scoop

Most recent addition to the Work-O-Matic system, manufactured by The Union Metal Manufacturing Company, is this end-loading scoop. A fork truck can be converted into a "front-end loader" in the 30 seconds required to attach the scoop to the truck's auxiliary lifting mast. The operator partially raises the auxiliary mast to lower the scoop to floor level, then digs it into the material being scooped. When the auxiliary lift is lowered, the downward force is transferred through the connecting arms, lowering the scoop back and raising its edge until the scoop is completely righted.

Circle No. 183 on Reader Service Card for more information

(Continued on page 172)



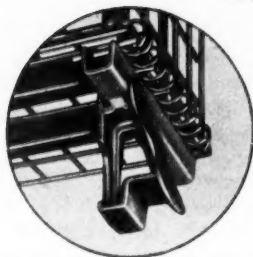
NEW "HI-LODE" PALLETAINER

...answer to
bulk materials
handling

See how safely they stack . . . even when loaded to overflowing! The new "HI-LODE" Palletainers are designed for just such extra-capacity handling of heavy bulk materials.

These new Palletainer models feature steel U-channel beams interlocked and welded for square channel strength in the frame. Famous Palletainer construction of reinforced electro-welded steel rods makes the sides virtually indestructible, too. Note how the center legs have been eliminated, and how cross beams give the new undercarriage added protection from below. Those malleable steel corner legs need no bracing. The entire under-area is clear, providing maximum entry for fork trucks and accommodating extra-capacity loads heaped on units below.

The "HI-LODE" Palletainer is available in 2,000, 4,000 or 6,000 lb. capacity models. Write for full details today and see how little it costs to solve your bulk materials handling problem.



Malleable cast legs provide greater unit capacities, simplify stacking and make for higher safety margin.



New locking device on all PALLETAINERS holds sides securely, regardless of load. Cannot be released accidentally, cannot be lost in shipment.

UNION STEEL PRODUCTS COMPANY
Albion, Michigan

1903 • Our Golden Anniversary • 1953

Circle No. 133 on Reader Service Card for more information

FLOW • OCTOBER, 1953



Rubbish Disposal is only ONE of the Cost Cutting jobs for the Dempster-Dumpster in your plant...



It's amazing, almost to the point of fantasy, yet so soundly real, what the minds of men in all types of industry have cooked up for more efficiency and reduced costs with the Dempster-Dumpster.

Hundreds of plants are handling materials of practically every description with one truck-mounted Dempster-Dumpster serving scores of detachable containers. Here are just a few. Oils, gases, and liquids handled in our Tank Type Containers . . . tools and equipment in our Tool Shed Type Container . . . containers on casters placed for receiving steel chips from lathes or at conveyors for receiving finished products . . . container with doors and windows, replacing shacks for plant guards or nightwatchmen . . . containers built to handle chlorinator ash residue of approximately 1500° F. and there are dozens more.

Containers are placed wherever material accumulates. When loaded each is picked-up, hauled and emptied (as illustrated above) . . . or load set down intact. The entire op-



eration is handled by only one man, the driver, by hydraulic controls in cab.

The containers are built in capacities up to 12 cu. yds. and each is designed to suit the materials to be handled—be they bulky, light or heavy . . . solids, liquids or dust.

One Dempster-Dumpster, with driver, does the work of 3 to 5 conventional trucks . . . eliminates trucks and crews standing idle . . .

eliminates rehandling of materials and increases efficiency and good plantkeeping.

If you have even any remote idea that this equipment could be adapted to your operation, by all means contact us because being without the Dempster-Dumpster System could easily be costing your company thousands of dollars annually. Manufactured and sold exclusively by Dempster Brothers, Inc.



One Dempster-Dumpster Handles All Containers . . . All Sizes . . . All Designs

DEMPSTER BROTHERS, 6103 Shea Bldg., Knoxville 17, Tenn.



NOW!

the **BIG** news
in the Hoist Field!



P&H

ZIP-LIFT
with
Rope Control
only

\$199⁵⁰

If you want "Thru-the-Air" handling at its low-cost best, you can't beat this — a *genuine* P&H Zip-Lift Electric Hoist with rope control . . . only \$199.50.

This new "Zip" is built to give you years of trouble-free service — *guaranteed* to withstand an occasional overload up to 25% more than the rated capacity. Other important advantages include real wire rope hoisting for wider side pull, double brakes for double safety, and easy installation (just hang it up and plug it in).

Yes, here's the number-one buy in the low-cost

handle it

"THRU THE AIR"
with



hoist field — the new Zip-Lift ready to save time and money for you. Check the many ways "Thru-the-Air" handling can cut your *costs*. Ask your nearby P&H Dealer to give your plant the once-over. His advice will cost you nothing — and he will save you money. Call him today!

**Also available with full-magnetic
push button control**

CALL YOUR NEAREST
P&H DEALER
OR WRITE—



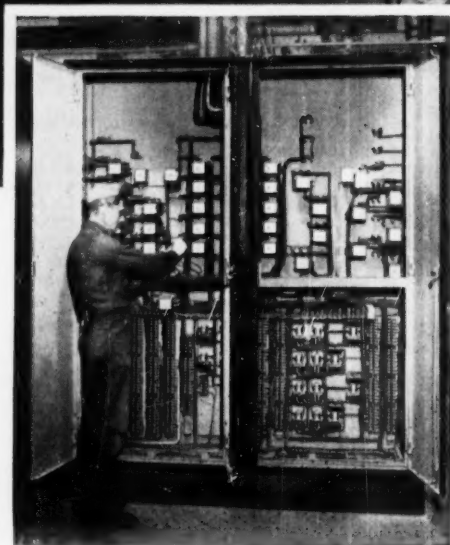
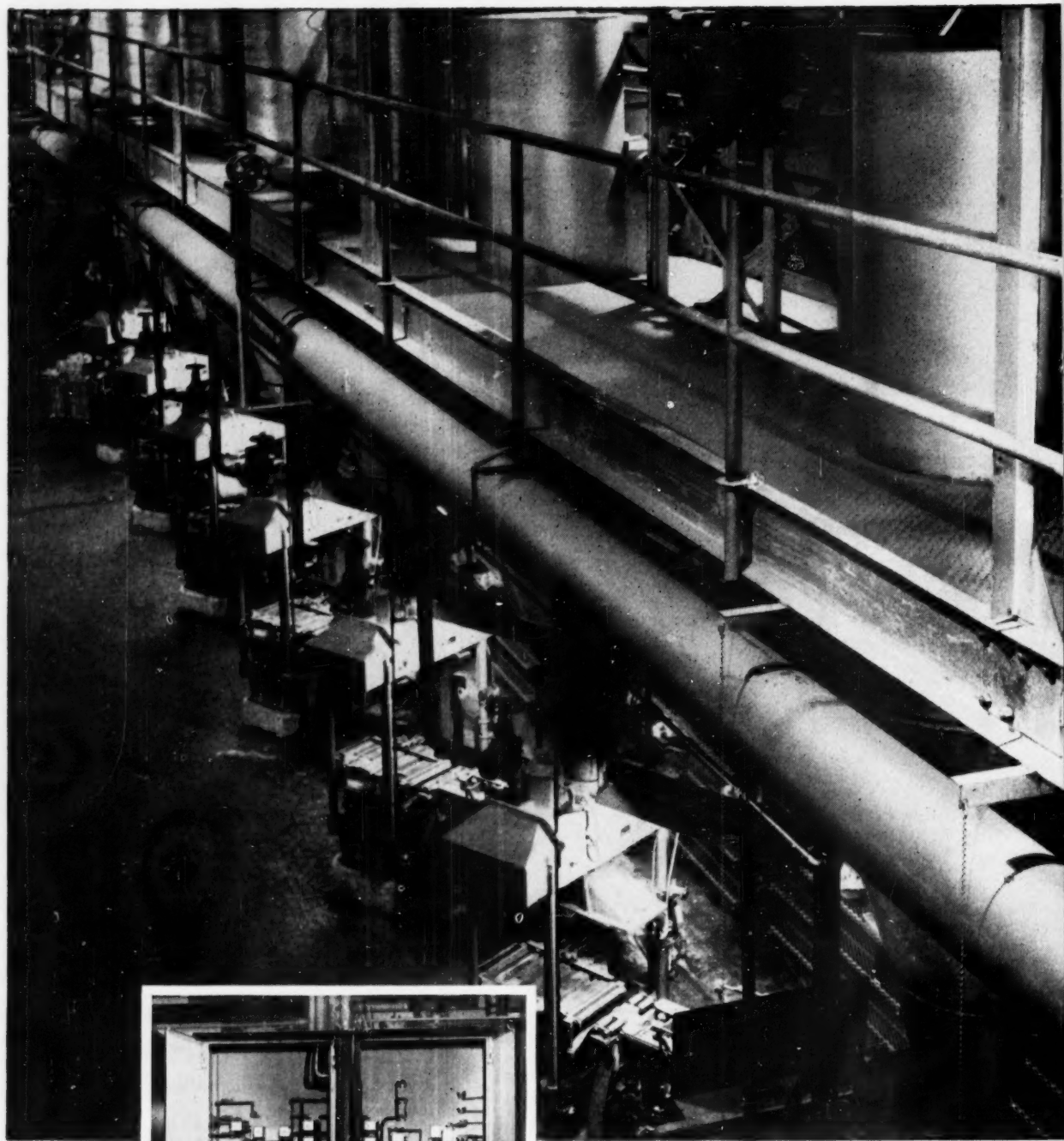
ELECTRIC HOIST DIVISION

**HARNISCHFEGER
CORPORATION**

MILWAUKEE 46, WISCONSIN



Circle No. 155 on Reader Service Card for more information



30 tons of sand per hour are fed by a pneumatic system to storage bins over machines.

Wide opening rear doors on the master control board make the plant electrician's job easier.



From this control board, 1 man measures, mixes, moves sand for casting molds

One man, alone at this Westinghouse control board, regulates the flow of sand used in making cores for cylinder blocks at the Ford plant near Cleveland. Watching the lighted board, he delivers the sand, through pipelines, into storage bins above any one of 38 core-blowing machines.

Instant control from one location

Westinghouse has put the control of an entire sand distribution system in the hands of one competent man and his electronic partner. The operator, with total responsibility, sends sand where the panel tells him it's needed. Ford's control board is conveniently located in an out-of-the-way place. Westinghouse could put *your* control board, just as satisfactorily, in your office.

Six assistants—not on the payroll

The master board flashes orders to six unattended Westinghouse Control Centers scattered through-

out the plant. Each control center has micro-flex counters and timers which regulate the mixing machinery. Sand, bond, oil and water, in precise proportion, are whipped into one-ton batches. Then Crane Company's Turbo-Drive pneumatic sand distribution system blows the prepared batch of sand through 4" piping to storage bins over the core-blower machines—all in 70 seconds.

Next time call Westinghouse

This Westinghouse control system has netted Ford a saving in man power and in maintenance and production costs. Cylinder block production is up and still climbing. Perhaps Westinghouse equipment, designed for your job, and Westinghouse engineering help, from first plans to final tests, could improve your operation, too. Your nearby Westinghouse representative will be glad to talk to you. Call him early in the planning stage. Westinghouse Electric Corporation, Pittsburgh 30, Pennsylvania.

J-94991

YOU CAN BE SURE...IF IT'S
Westinghouse



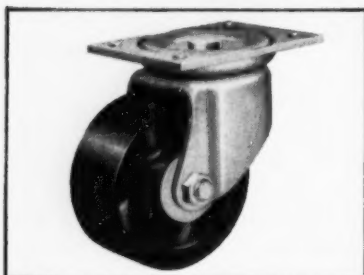
Circle No. 140 on Reader Service Card for more information

MATERIALS-HANDLING NEWS

★ Panel Discussions by Bassick, World's Largest Manufacturer of Casters and Floor Protection Equipment ★

This pair of Bassick newcomers can cut your handling costs

New heavy-duty "Form-Forged" caster shoulders loads up to 1500 lbs.



S6992-2 "Form-Forged" Caster with 2½" tread wheels and load rating of 1500 lbs.

This new Bassick "Heavy-Duty" steel caster offers new highs in performance at a new low in cost. It harnesses the easy action of precision-formed raceways to a frame that's built extra strong to take the punishing loads of powered assembly-line dollies, and equipment. You can get it in 5", 6", 8" and 10" sizes, with semi-steel, forged steel or rubber-tread wheels. First cost is low, and its rugged construction enables it to stand up under the toughest operating conditions — which means lower maintenance costs. Take a look at these important features:

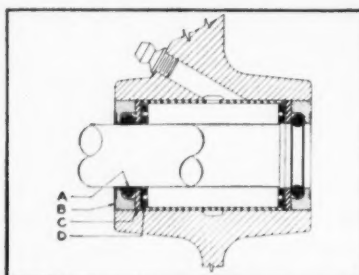
Double Ball Race — for efficient, easy motion

Extra-Heavy King Pin — for full protection at this critical point

Fully Hardened Raceways — for years of dependable service

Structurally Shaped of Heavy-Gauge Steel — for safe support of heavy loads

New low-cost sealed bearings for industrial rubber-tread wheels



Cross-section of new Bassick seal

This drawing of the new Bassick seal shows its simple design which assures low first cost plus long service life. Parts listed below form baffled path that lubricant has a hard time travelling. The wheel retains its lubricant and foreign matter is kept out.

The sealed bearing can be regreased by standard methods through regular Alemite fittings. It's particularly effective in preventing entrance of dust, water spray and steam-cleaning fog. Now available on a growing number of Bassick wheels.

A. Neoprene "O" ring is in elastic contact with axle shaft . . . does not turn.

B. Powder metal outside seal washer is press-fitted in hub of wheel and turns with wheel.

C. Steel roller bearing retainer washer rotates with wheel.

D. Roller bearing end cage washer.



Monkey-Savers

We recently received a letter from a New Orleans monkey fancier. Turns out that Bassick casters have one use we never thought of — they help keep monkeys healthy. Here's how our New Orleans friend tells it:

"Your casters have been put to very good use. As you may know, monkeys are susceptible to all the diseases of humans, and in particular, colds and pneumonia. I have found it quite advantageous, with the use of Bassick casters, to roll the cage into a sheltered garage on cold, rainy days, and out into the yard again when the sun shines. They make one cage do the work of two. Also, they simplify cleaning the cage, as I simply roll it over to the drain and hose it out. Bassick casters are real Monkey-Savers."

Whether you're handling materials or monkeys, it seems, you'll save time and money by putting Bassick casters under them. Your Bassick industrial distributor will help you pick the right type. Or write us.



THE BASSICK
COMPANY
Bridgeport 2, Conn.

In Canada:
Belleville, Ont.

Find out more about these new Bassick products today

Check your industrial distributor salesman for facts and figures on these two new cost-cutting Bassick developments. Or write direct to us. Either way you'll receive a prompt reply to your inquiry. You'll also

receive the full story on the new "Form-Forged" Steel Caster and the new Sealed Bearing Wheels—a story that will prove once more that when it comes to industrial casters and wheels . . . it pays to come to Bassick.



MAKING MORE KINDS OF CASTERS . . . MAKING CASTERS DO MORE

Circle No. 17 on Reader Service Card for more information

Literature featured in ads

From parcel post package to carload, there's a steel strapping to fit every need, according to literature available from the Gerrard Steel Strapping Division of United States Steel Corp. Gerrard makes both round and flat strapping.

Circle 59 on Reader Service Card

Literature made available by the Richards-Wilcox Co. maintains that flexibility is the key to efficient material handling. Their Zig-Zag continuous power chain conveyor is said to provide that complete flexibility.

Circle 115 on Reader Service Card

All the facts about the 357 Mobile Crane may be obtained from Unit Crane & Shovel Corp. Numerous applications are explained in which labor costs and time saved can prove most profitable.

Circle 135 on Reader Service Card

Low-Lift Platform trucks are described in literature available from Wright-Hibbard Industrial Electric Truck Co. General specifications and engineering data on various types, sizes and capacities are included.

Circle 143 on Reader Service Card

Signode Steel Strapping Co. has information to assist companies in developing unit skid loads that are safe, economical and most easily handled for warehousing or shipping.

Circle 119 on Reader Service Card

The advantages of double reduction drive used on Whiting cranes are described in literature available from the Whiting Corp. Overall drive efficiency of 97.5 percent is said to be provided.

Circle 141 on Reader Service Card

Complete information concerning the many uses for the tough thermoplastic called U. S. Royalite may be obtained from the United States Rubber Co. It is said to be well-adapted to such products as tote pans and small parts trays.

Circle 134 on Reader Service Card

Literature on the new Hydrotork drive now available on Clark Industrial Trucks may be obtained from the Clark

Equipment Co. It gives the results of a year-long series of on-the-job-testing.

Circle 33 on Reader Service Card

Chisholm-Moore Co. invites every plant executive to obtain its hoist catalog and keep it at his finger tips when confronted with hoisting problems, especially those involving overhead transportation.

Circle 30 on Reader Service Card

A COMMON PROBLEM:
*How Best to Handle
"In-Between Loads"?*

See us at The National Materials
Handling Exposition, Philadelphia,
Booth 1434, May 18-22.

Every business has them: Loads too
heavy for safe hand lifting, yet not
large enough to justify the use of
big, expensive equipment. Loads that
vary in size and shape, that move
on no fixed route, and that must be
handled at many height levels.

A Happy Solution ←

Use *BIG JOE Hydraulic Lifts



Manual Platform
Model from
\$236.50



Battery Operated
Fork Model from
\$587.50



Manually Operated Units—Capacity 750 lbs.,
Lifting Heights to 58"



Battery Operated Units—Capacity 1000 lbs.,
Lifting Heights to 80"

Write for Specifications on All Models

BIG JOE MANUFACTURING COMPANY

900-88 W. JACKSON BLVD., CHICAGO 7, ILLINOIS

Cable Address: **BIG JOE** Distributors in Principal Cities

*U. S. REG. IN
U. S. PAT. OFF.



*Let
BIG JOE
do it!*

Circle No. 172 on Reader Service Card for more information

AD LITERATURE

Continued

A six-page special report on the application of Baker attachments to various loads may be requested from the Baker-Raulang Co.

Circle 14 on Reader Service Card

A new illustrated fact book entitled, "See Why Buda Is Better," may be obtained from

the Buda Co. It points up the highlights in Buda maneuverability, speedy maintenance and dependable operation.

Circle 23 on Reader Service Card

Packed with factual information is the new booklet available from the Evans Products Co. It shows how railroads can earn extra revenue and shippers can cut shipping costs with time-tested D-F equipment.

Circle 50 on Reader Service Card

The services of a technical expert may be requested from the Goodyear Tire and Rubber Co. in determining the precise tire requirements for your individual industrial operation.

Circle 62 on Reader Service Card

Details of services available through the two packaging laboratories of the General Box Co. may be obtained upon request. Problems in container design and cost are said to be solved easily with the help of the laboratory's experts.

Circle 55 on Reader Service Card

Glue-Fast Equipment Co. has a brochure available which explains numerous cost-saving advantages of its label gluer device. Ungummed labels or portions of your standard billing form may be used as a label since the device applies its own liquid glue to the label.

Circle 20 on Reader Service Card

Bulletin A-60 may be obtained from Flexible Steel Lacing Co. covering the range of applications for its Alligator conveyor belt lacing. Twelve sizes for belts up to $\frac{5}{8}$ inch thick are available.

Circle 52 on Reader Service Card

Conveyors which must resist corrosion from acids or alkalis are described on information available from the Metzgar Co. Gravity or live roller conveyors designed to solve the corrosion problem have nylon bearings on stainless steel axles.

Circle 92 on Reader Service Card

Complete information on the Grand Lift Stacker, an electric hydraulic hand lift truck for warehouse stacking, loading and unloading, may be requested from Allied Mfg. & Sales Co.

Circle 4 on Reader Service Card



LIFT JACKS and Semi-live PLATFORMS

- Handling Efficiency
- Versatility
- Flexibility

Clark Lifts Jacks and Semi-live Platforms will answer your handling problems. Available with all types superstructure including bins, racks, boxes, and shelves.

Clark Semi-live platforms are available with metal bound wood decks, unbound wood decks, and steel decks. All have 9" x 2" steel and 9" x 2 1/2" rubber tired, roller bearing wheels and zerk grease fittings. All metal joints are welded. Deck height 10 1/2". Under-clearance 9 1/2". Sizes from 24" to 32" to any width and length you need. All 3000 lb. capacity or larger. Will interchange with many other systems.



FREE TRIAL!

CLARK LIFT JACK AND PLATFORMS PROVE THEMSELVES! Compare Clark heavy duty construction and extra large wheel sizes with all others and prove the system by trial in your plant. One lift jack and two 36" x 60" platforms furnished F.O.B. our plant for free trial. Specify rubber or steel wheels.



ALL STEEL WELDED TRUCK CO.
ROCKFORD, ILLINOIS

Circle No. 3 on Reader Service Card for more information



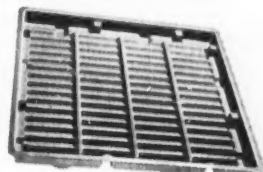
Strong enough for every job... Light enough to do it easier... **U. S. Royalite Tote Boxes!**

Tough, versatile tote boxes made with U. S. Royalite combine amazing strength with surprising lightness. For example, a tote box formed of this thermoplastic with these inside dimensions, length 18 inches, width 12 inches and depth 6 inches, weighs only 3.8 pounds! Add to this the facts that U. S. Royalite Tote Boxes are waterproof, not affected by oils, alkalis and most acids, have a *one-piece* construction, and you'll see why they give real production economy and efficiency.

U. S. Royalite Tote Boxes come in a wide variety of shapes and sizes in permanent colors. Other important facts about U. S. Royalite are listed below. For complete information about this tough thermoplastic's uses in tote boxes and other products, write to Dept. MMR-2.



Turbine Blade Tray



Filter Element Tray

Check List of U. S. ROYALITE Advantages:

- | | |
|---|--|
| ✓ Lightweight | ✓ Waterproof |
| ✓ Tough | ✓ Color-permeated throughout |
| ✓ Non-splintering | ✓ Available in sheets |
| ✓ Non-warping, non-corrosive | ✓ Stable under changing atmospheric conditions |
| ✓ Impervious to oils, most acids, alkalis | ✓ Exceptional electrical insulating qualities |
| ✓ Highly resistant to impact | ✓ Low rate of heat conductivity |
| ✓ Prefinished to your specifications | |
| ✓ Easily formed on low-cost tools | |

U.S. ROYALITE
TOUGH PLASTIC PRODUCTS

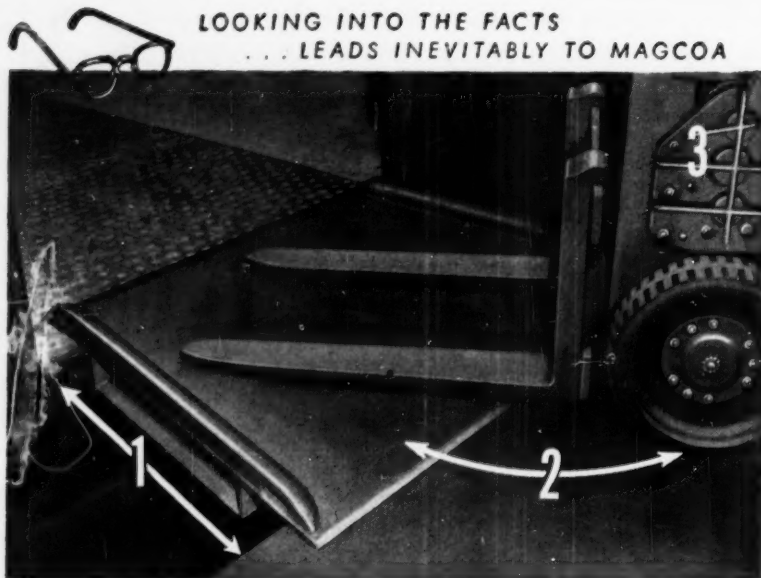


UNITED STATES RUBBER COMPANY

2638 NORTH PULASKI ROAD, CHICAGO 39, ILLINOIS

Circle No. 134 on Reader Service Card for more information.

LOOKING INTO THE FACTS
... LEADS INEVITABLY TO MAGCOA



This light-weight **HEAVY-DUTY**
MAGCOA DOCKBOARD
is a Better Investment . . . and here's why

1. **Made for this Specific Span**—You know the problem of bridging car-dock and truck-dock spans. No problem in this case: the Magcoa representative specified the exact size Dockboard for this span.
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Safety, Economy, Efficiency Features—Only Magcoa gives you all these features: (1) rounded curb-ends for safer turns, (2) quarter-round safety curbs that protect tires while preventing run-offs, (3) comfortable one-piece hand holds for safe lifting and positioning, (4) angled crown that keeps edges flush on floors, (5) rounded edge beveling that saves tires, equipment, loads, and (6) rugged safety spans for extra strength and elimination of slipping.



Another "tough" bridgeplate problem solved quickly and permanently by a Magcoa Dockboard.

Magcoa Service—At Your Service—If your Dockboard needs repair because of abuse or misuse, Magcoa Service is at your service—to put your equipment in good working order, in short order!

Looking Into the Facts is the title of our new facts file. It's loaded with information you ought to have to make a sound Dockboard investment . . . and it's yours for the asking. At the same time, look into the new Magcoa Portable Yard Ramp. It's a rugged, high-speed loading dock . . . where and when you want it.

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MATERIALS HANDLING DIV., EAST CHICAGO 1, IND. — Representatives in Principal Cities

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Walker Bldg.
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7657 Moline St.
LOS ANGELES 34,
8922 W. 25th St.
SAN FRANCISCO 4,
Rosa Bldg.

Please send: ☐ Dockboard Facts File ☐ Portable Yard Ramp Literature

Name & Title _____

Company _____

Address _____

City-Zone-State _____

Circle No. 85 on Reader Service Card for Dockboard information
Circle No. 156 on Reader Service Card for Yard Ramp information

AD LITERATURE

Continued

Detailed specifications and illustrations of various lifting operations are contained in the catalog available from Coles Cranes, Inc. It describes Coles' full-swing mobile crane with cantilever boom and reversible steering.

Circle 33 on Reader Service Card

The ACCO Registered Sling Chain Catalog describes the 125 various Endweldur Accalloy sling chains manufactured by the American Chain & Cable Co. Links are from 1/4-inch to 1 1/4-inches to fit any work load up to 57,500 pounds per leg.

Circle 7 on Reader Service Card

Literature discussing the very latest in material handling methods may be obtained from the Alvey-Ferguson Co. Specially engineered conveyor systems are described in detail.

Circle 5 on Reader Service Card

Faster warehouse stacking through faster carton and case identification is emphasized in literature obtainable from Adolph Gottscho Inc. in describing its Rolacoder automatic marking machines.

Circle 63 on Reader Service Card

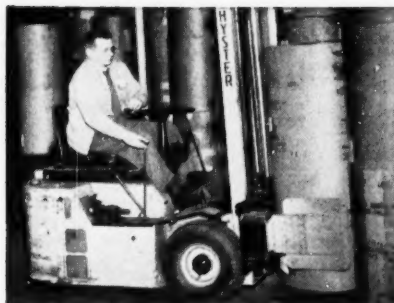
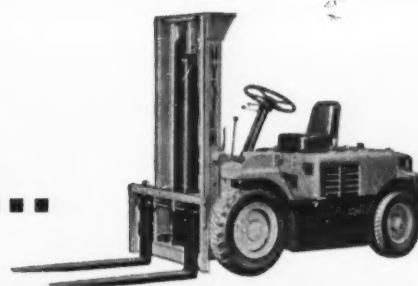
Savings in dollars and valuable warehouse space are said to be found in literature available from the Wehle Conveyor Co. Limited space for installation of the Wehle conveyor is maintained to be no problem.

Circle 164 on Reader Service Card

A descriptive bulletin on the heavy-duty Feedrail trolley busway may be obtained from the Feedrail Corp. Its electric power system provides adequate safety since it is design for high amperages and heavy work loads.

Circle 51 on Reader Service Card

To all basic HYSTER TRUCKS...



Paper-roll Load-Grab



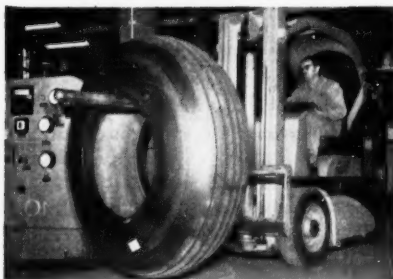
Karry Crane with Boom Extension



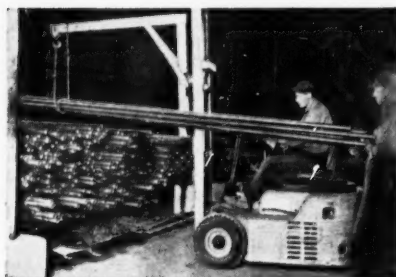
4-Barrel Load-Grab



Scoop—for loose aggregates.



Ram—for tires, rolls, spools, etc.



Boom—for odd shapes, light crane work.

you can add...

HYSTER attachments

and do scores of jobs
quicker...at less cost!

Are your materials hard-to-handle? The right Hyster® Truck Attachment—and Hyster offers more than 100 of them—frequently is the *key* to greater profits.

Whether your product is in the form of bales, boxes, bricks, barrels, buckets, aggregates, rolls or cylinders, your Hyster Lift Truck and the right attachment is the most effective answer to the problem of moving materials which cannot be handled with pallets.

Your Hyster Dealer is a specialist in reducing materials handling costs. He can recommend the correct lift truck practices for *your* materials.

Make the Hyster Lift Truck your *basic* materials handling tool—to it add the right cost-reducing attachments. Call your Hyster Dealer today, or write for Catalogs 1266, 1219, 1258 to:

HYSTER COMPANY

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1031 Myers Street. Danville, Illinois



THERE'S PROFIT IN
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Be Sure to Call HYSTER Before You Buy ANY Lift Truck!

HYSTER COMPANY • FOUR FACTORIES: • Portland, Oregon; Danville, Illinois; Peoria, Illinois; Nijmegen, The Netherlands

Circle No. 74 on Reader Service Card for more information




STANLEY *Magic Door* CONTROLS

Present Many Opportunities to REDUCE Costs

Doors that are opened and closed automatically by Stanley Magic Door Controls save man hours and traffic flows more smoothly and faster. They save wear and tear on plant mobile equipment as well as on the doors themselves. Heat and humidity losses are minimized. Employees are happier and more efficient . . . and every plant finds plus benefits from every different application on new or existing doors.

Let a Stanley representative share with you his knowledge, gained by over 20 year's experience, to help you reduce costs.

Magic Door Controls with pull cord, regular Stanley operator for "in" and "out" door handling 2-way traffic, using existing air supply on existing doors can be purchased for as little as \$347.50. Send for further information today.



STANLEY
Magic Door
CONTROLS

The Stanley Works, Magic Door Division
30110 Lake St., New Britain, Conn.

Gentlemen: () Please send full information on Stanley Magic Door Controls.
() Have representative stop in when in the area.

Company Name _____

My Name _____

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City _____ Zone _____ State _____

STANLEY TOOLS • STANLEY HARDWARE • STANLEY ELECTRIC TOOLS • STANLEY STEEL STRAPPING • STANLEY STEEL

Circle No. 124 on Reader Service Card for more information

AD LITERATURE

Continued

Two new booklets describing SR-4 devices are available from Baldwin-Lima-Hamilton Corp. Booklet No. 4106 covers tank weighing while No. 4105 is devoted to crane scales.

Circle 166 on Reader Service Card

A free copy of the Yale Hoist Users & Buyers Guide is available upon request from the Yale & Towne Mfg. Co. It is said to contain much valuable data for proper hoist selection.

Circle 144 on Reader Service Card

A 32-page bulk storage catalog may be requested from Sauerman Bros., Inc., describing its line of drag line scrapers. The Sauerman scraper system is said to provide efficient low-cost handling of bulk materials both indoors and outdoors and can prove its worth in both large and small plants.

Circle 150 on Reader Service Card

Information on the model D-424 fork lift truck may be obtained from the Mobilift Corp. The truck is gasoline powered with a Chrysler fluid drive coupled engine. It has a 4000-pound capacity and a 108-inch lifting height potential.

Circle 98 on Reader Service Card

The Union Special Machine Co. will make recommendations as to the most efficient equipment needed to solve your bag-closing problems. They'll provide full details on available machinery to meet your specific requirements, without obligation, of course.

Circle 132 on Reader Service Card

New strapping methods and techniques are described in literature available from A. J. Gerrard & Co. Applications for strapping during in-plant operations as well as in preparation for shipment of products and materials leaving the plant are well explained.

Circle 58 on Reader Service Card

ONE MAN *and* PALLETIER

Get materials where you want them ... **FAST!**

Powerful, new Crescent Palletier, built for maneuverability speeds the steady flow of materials from receiving...through process...to warehouse or shipping. **RESULT**—drastic reduction in handling cost.



why 1 man does the work of 4

Simplified Controls reduce operator "breaking in" time—increase operating efficiency.

Hydraulic Brakes assure operator confidence—increase machine output. A big reason why Palletier daily production records are so high.

Complete Visibility. Operator has clear visibility in every direction whether loading, carrying or stacking. Less fatigue; more accurate work, higher operating speeds.

Palletier has electric or ready power units. 1000 to 8000 lbs. capacity.

INDUSTRIAL TRUCKS FOR EVERY JOB



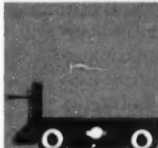
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Stand-up Model.
Extremely
Maneuverable.
1000 to 4000 lbs.



**LOW HEAD-
ROOM MODEL.**
For highway truck
loading and
unloading.
2000 to 4000 lbs.



**HIGH-LIFT
PLATFORM.**
Telescopic—
4000 to 6000 lbs.
Non-telescopic—
6000 to 10,000 lbs.



LOAD CARRIER.
Heavy-Duty
utility trucks.
4000 to 10,000 lbs.



TRACTORS.
For trailer towing.
Battery powered.
For all practical
trailer train loads.



**LOW-LIFT
PLATFORM.**
For lifting and
moving skids.
1000 to 6000 lbs.

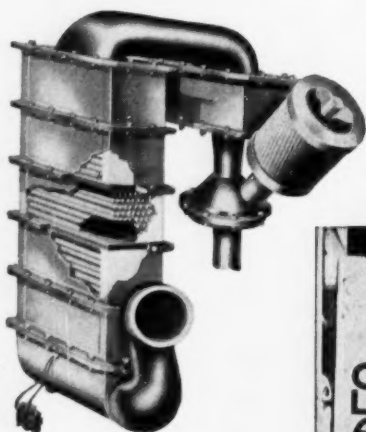
C **RESCENT**

CRESCENT TRUCK COMPANY
1155 Willow Street
LEBANON, PENNSYLVANIA

PALLETIER SAVES MONEY

Circle No. 167 on Reader Service Card for more information

ELIMINATE CARBON MONOXIDE, FUMES AND ODORS FROM LIFT TRUCKS



OCM CATALYTIC EXHAUST

(A Houdry Catalyst Development)

Reduces CO to a safe level

★ Kills all fumes and odors from exhaust gases of internal combustion engines using white gasoline.

★ Assures absolute safety for employees, and increases efficiency.

★ Makes possible the operation of gasoline-powered equipment anywhere, thus reducing costs.

★ Simple, sturdy construction, rupture-proof under explosion.

★ Gives 2000-2500 trouble-free hours of operation, after which catalyst is quickly replaceable ... and at low cost.

★ Tested and listed by Underwriters Laboratories, Inc., and used in many of the nation's leading industrial plants.

and any other types of
gasoline-powered equipment



The OCM CATALYTIC EXHAUST replaces the original muffler without changing clearances . . . and is easy to install.

Write for detailed information and specifications to

OXY-CATALYST, INC.

WAYNE, PA.



NOTE. This company also makes catalysts for air-pollution control, power and energy, and waste heat recovery for industrial operations ranging from metal coating to oil refining. Write for details.

Circle No. 154 on Reader Service Card for more information

For Wagon, Truck or Locomotive Crane work, you can't go wrong when your

BROWNING'S ON THE JOB!

WAGON CRANES
2 Models
17½ to 25 Tons
25 to 100 Ft. Booms

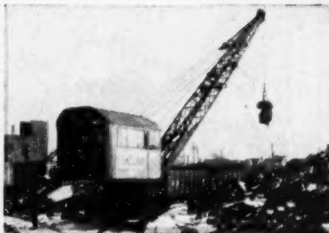
TRUCK CRANES
5 Models
8 to 30 Tons
25 to 120 Ft. Booms

LOCOMOTIVE CRANES
3 Models
25 to 50 Tons
50 to 135 Ft. Booms

You can't beat BROWNING'S on these jobs



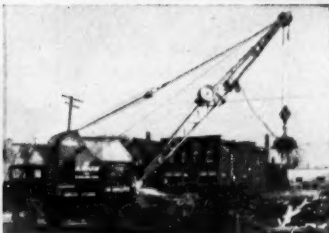
HEAVY MATERIALS HANDLING



CAR LOADING AND SWITCHING



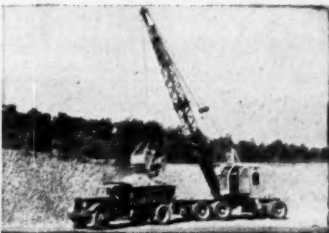
STEEL ERECTING



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RAILROAD MAINTENANCE



SAND AND GRAVEL LOADING

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Browning builds the only complete line of cranes for all heavy-materials handling

TRUCK CRANES with independent control of each function *separately* or *simultaneously* on all models. High-speed maneuverability in worst conditions. Short wheelbase for operation in close quarters.

SELF-PROPELLED WAGON CRANES, originated by Browning. Rubber-mounted, one man operation, with the power, smoothness and versatility to operate efficiently and economically on a wide variety of crane work.

DIESEL AND TORQFLO LOCOMOTIVE CRANES with unequalled power for switching. Fast, easy controls for maximum productive operation. Rugged design and construction for year-in, year-out dependability.

BROWNING can recommend, and deliver the *right* crane model for your job. Our fifty-four years' experience as crane specialists is yours for the asking. Write us for complete information.

THE BROWNING CRANE & SHOVEL CO.
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LOCOMOTIVE, WAGON
TRUCK AND CRAWLER *Cranes*

The All New

MOBILIFT

4000 Pounder

Has Everything You Want in a "Sit-Down" FORK LIFT TRUCK

Model D-424

4,000 lbs. cap.

at 24" load center
83" hydraulic mast
lift height 108"



Here are Just a Few of the Trend-Setting Features...

- ◆ Chrysler 65-bhp 6-cyl. Gas Engine.
- ◆ Chrysler Gyrol Fluid Coupling.
- ◆ Mobil-Matic Drive for smooth, positive power transmission through the MOBILIFT Oil-Immersed, Multiple-Disc Clutch and Constant-Mesh Transmission—2 speeds forward, 2 reverse.
- ◆ One Lev-R-Matic Control for forward and reverse...just Push to go forward—Pull for reverse—NO CLUTCH PEDAL—NO GEARS TO SHIFT!
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- ◆ Hydraulic Service Brakes.
- ◆ Combination Ball-Bearing Worm & Nut Type Steering.
- ◆ Easy to Get On and Off—no obstructions—free access from left or right side.
- ◆ One-Piece Hood Raises for Easy Service Accessibility.

These and many more exclusive MOBILIFT features make this new D-424 the lift truck for you! ...Send coupon for complete details.



EASY TO SERVICE
One-Piece Hood hinged
for easy access to engine
compartment.

**DESIGNED FOR OPERATOR
COMFORT—SAFETY.**

No obstructions on floor.
Easy to get on and off from
left or right side. Controls
and instruments placed for
easy reach and view.

MOBILIFT CORPORATION, DEPT. B
835 S. E. Main, Portland 14, Oregon

- ☐ Please send me complete information on the D-424.
☐ Please have your sales representative contact me.

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Company _____

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There's a Caster for Every Job— Make Sure You Select The Right One

WHEN you consider the countless applications for which industrial casters are used—from small utility carts to heavy assembly jigs—it's no wonder that the proper selection of a caster for each size and type of job can't possibly be done in a careless, slipshod manner if satisfactory results are to be expected.

The available types, styles and sizes of casters now being manufactured are much too numerous to list in any detail. As a matter of fact, the question has often been raised. "Are there too many kinds and sizes of casters?"

Certainly, the job of selecting a caster is not an easy one. Which is one of the reasons why the Caster & Floor Truck Manufacturer's Association has established a Caster Standard Task Committee, currently at work on a standard nomenclature, a classification and description of the product types, and recommended standard sizes, capacities, applications and standard testing procedures.

Let's examine some of the more common caster types. But first, let's establish what, exactly, is meant by a caster. According to the Caster & Floor Truck Manufacturer's Association, a caster represents a complete unit consisting of the caster assembly and axle, wheel and bearing.

In more general terms, a caster may be said to consist of three major components: top plate, horn assembly, wheel. Each of these major components consists of a number of other parts.

Top Plate. The majority of industrial casters have a flat top plate as a means of attachment to the carrier. However, there are many variations of top plates, and the "stem" is the most popular of these variations.

Horn Assembly. The horn assembly may be formed of a single piece of cast iron, forged steel or stamped steel. Or, the legs of the horn assembly may be welded to the hornplate.

Wheel. Manufacturers offer a wide variety of wheels to meet different conditions.*

Types of Casters

Generally, casters may be classified as either: (1) household, (2) institutional, or (3) industrial. There is no clear-cut differentiation between these groups, but they serve as titles for the purpose of general identification. There may be 300 other names, for as many casters, but, basically, all casters can be grouped into one of the general classifications.

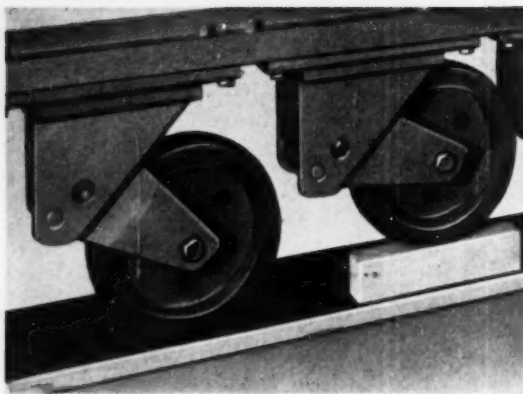
Although we are primarily concerned with industrial casters, a brief description of the

*See FLOW, June, 1953: "Types, Construction and Selection of Industrial Wheels", page 73.

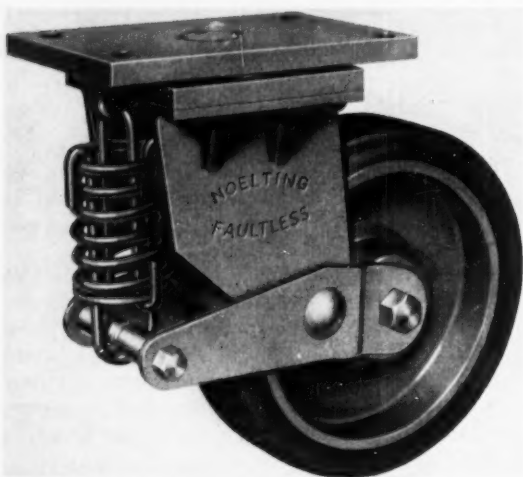
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Before You Select Any Caster, Answer These Questions:

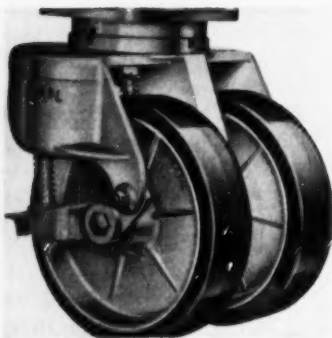
1. What is the weight of the load to be carried?
2. What are the floor conditions in the area of operation?
3. What are the operating conditions to be encountered?
4. How much movement will be required, and what kind?
5. How much draw-bar pull will be required for movement?



KNEE-ACTION CASTER is designed to give maximum protection from shock. This protection is afforded by a 2-inch vertical motion when going over bumps.



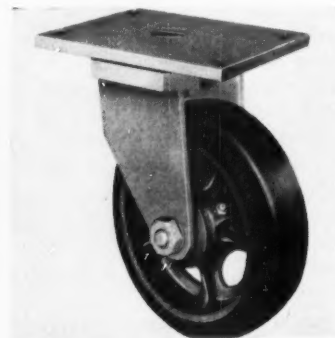
SPRING CUSHION type also reduces shock, and springs of various load capacities may be interchanged as needed. Note extended offset for easy swiveling.



DUAL CASTERS, individually sprung, may be used over uneven surfaces for greater stability.



RUBBER-TIRED casters may have either solid rubber or semi-pneumatic tires, depending on service.



DOUBLE RACE casters combine precision-machined outer ball race, thrust bearing, for heavy loads.

CASTERS

other two groups will provide a means of comparison.

Household Casters. Household casters are small, and of light duty class and construction. They are generally fabricated of stamped steel, and the wheel diameter is seldom larger than 3 inches. As a rule, they are of stem-type construction.

Institutional Casters. Institutional casters are of medium light duty class and construction, and generally range in wheel size from 2 to 10 inches in diameter. Most casters of this type are attached to a stem, or some modification of a stem. Some flat top plate casters, because of their wheel tread width and load capacity, would fall into this classification.

Industrial Casters. Industrial casters are generally heavier in construction than institutional casters. In order to carry heavier loads over rough surfaces, they are equipped with wheels that have a wider tread in relation to the wheel diameter. It is not unusual to see an industrial caster with a 5-inch diameter wheel and a 2-inch wide tread.

Generally, industrial casters are manufactured from heavy-gauge steel, and have a flat top plate. Stem-type attachment in the industrial field is the exception rather than the rule.

Construction of industrial casters (and household and institutional as well) is of two basic types: swivel or rigid.

The term "swivel" is self-explanatory. The bottom portion of the caster (horn assembly and wheel) turns. It can make a complete 360-degree turn, while the top plate remains in a fixed position. This complete turn is made possible by offset, which is the horizontal distance between the vertical centers of the king pin and the axle. Because of this offset, and the load and thrust bearings, the wheel always "trails" when moved in any direction.

Assuming another point of view, a swivel caster operates on a simple principle of leverage. With the king bolt as the fulcrum, the offset causes the caster

Continued

to swivel when pressure is applied. All the factors being equal, the greater the offset, the greater the leverage, and the easier the caster will swivel.

The term "rigid" also is self-explanatory. This caster is rigid—it does not swivel. The top plate and horn assembly are fastened together in a stationary position. There is no offset, nor does a rigid caster have ball bearings and raceways.

A rigid caster will turn only when the vehicle or dolly to which it is attached is turned. Its only directional movements are forward and backward. All caster manufacturers make rigid-type casters to match their swivel models.

Caster Applications

There are several basic combinations of rigid and swivel casters that are used in the design of floor trucks and trailers. In applying these combinations, the relative importance of maneuverability in close quarters against "steerability" in moving long distances should be considered.

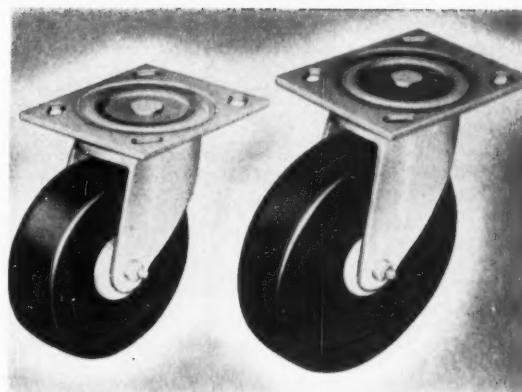
Among these combinations are:

Four Swivel Casters, Level Type. Here, four swivel casters, each being the same height, are mounted on floor trucks or dollies and other portable equipment which is moved short distance. This method offers maximum maneuverability.

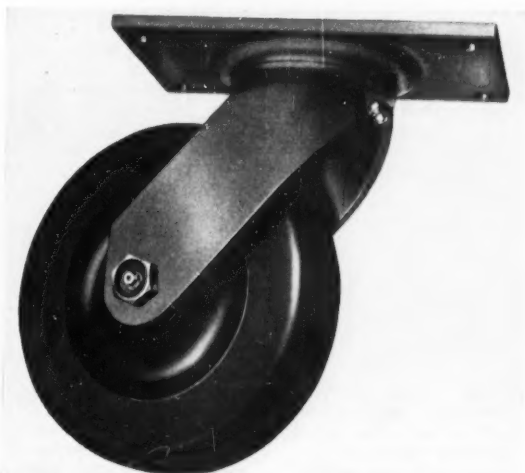
Two Swivel and Two Rigid Casters, Level Type. Used on all types of portable equipment, this method offers easy steering over long distances. Two rigid casters mounted on the front of the equipment provide stability over fairly long distances, while two rear swivel casters facilitate steering.

Two Swivel and Two Rigid Casters, Tilt Type. Mounted with this combination, a truck will turn in its own length and possess maximum maneuverability. Two large rigid casters are mounted in the center of the truck, and a smaller swivel caster is mounted

(More on next page)



CASE-HARDENED RACEWAYS on these double ball-bearing casters provide extra durability and longer service life. May be used for loads up to 1400 pounds.



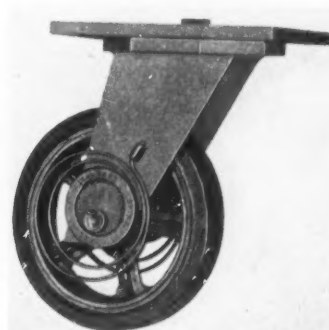
VERSATILE TOP PLATE is outstanding feature of this caster. It is available with a variety of bolt hole spacings for flexibility of installation.



MEDIUM-DUTY caster has a load capacity of approximately 300 pounds. Assembly is pressed steel.

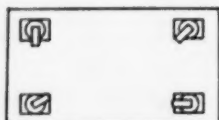


RIGID CASTER does not swivel, thus there is no offset. Often used in combination with swivel casters.

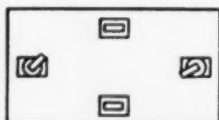


ANOTHER VARIATION of the shock-absorbing caster is this "swinging hub" type for trucks.

CASTER COMBINATIONS



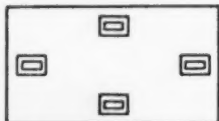
Four swivel casters, level type. Maximum maneuverability. Used on trucks and portable equipment moving short distances.



Two swivel and two rigid casters tilt type. Maximum maneuverability . . . will turn in its own length.



Two swivel and two rigid casters, level type. Easily steered over long distances. Used on all types of portable equipment.



Four rigid casters, tilt type. More economical than other types but limited to light loads.



Three swivel casters, level type. Used on barrel dollies and small portable machines . . . three-point floor contact.



Four swivel casters and two rigid casters, tilt type. This arrangement is as flexible as tilt type swivel and rigids, but more stable.

at each end. When traveling, the load is usually balanced on the center casters (resulting in less friction), while the swivel casters are loaded only when the truck is at rest, or being turned.

Four Rigid Casters, Tilt Type. The mounting of this combination is similar to that for two swivel and two rigid casters, tilt type, except, of course, that all four casters are rigid. Although more economical than other types, this combination is necessarily limited to light loads.

Four Swivel Casters and Two Rigid Casters, Tilt Type. This arrangement also is similar to the two swivel and two rigid casters, tilt type, except that two casters are mounted at each end of the truck. While as flexible as the two-swivel, two-rigid tilt type, it is more stable.

Three Swivel Casters, Level Type. This combination, with its three-point floor contact, is generally used on dollies and small portable machines.

Selecting Casters

There is no definite mathematical rule or formula that can be laid down for properly selecting casters. However, there are five questions that should be answered before you can begin to select the caster for your specific need. They are:

1. *What is the weight of the load?* What is the maximum load to be carried? Will the trucks be overloaded by careless workmen or used under heavier loads than anticipated? Will the load be dropped onto the truck? Under any of these conditions, it would be well to choose a caster with a load rating greater than the maximum load anticipated, even though published ratings generally allow for a reasonable safety overload factor.

2. *What are the floor conditions?* Is the operating

(Continued on page 86)



HAVING NO KING BOLT, this caster employs a swivel plate floating within a bearing assembly.



EXTRA HEAVY-DUTY caster has caster assembly and wheel made of malleable iron for strength.

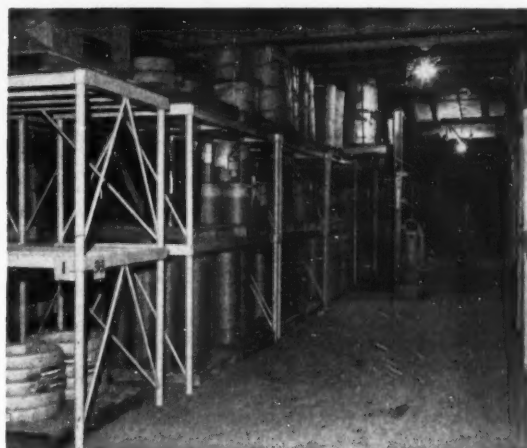
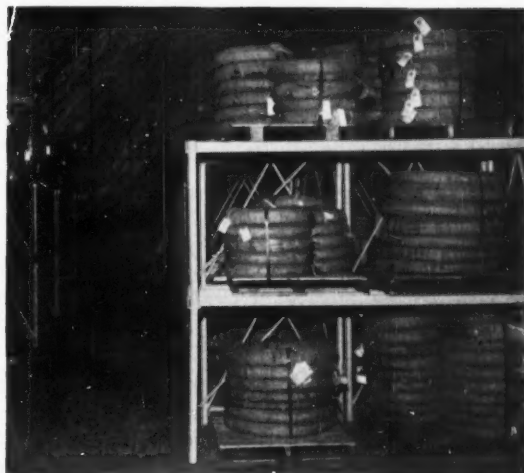


STEM-TYPE CASTER shown is equipped with a locking device, for equipment like scaffolding.

BEFORE AND AFTER use of pallet racks and stackers is shown here. Former method of storing rivet wire (below) at Convair compared with present space use (right).



RIGHT: SEGREGATION of material according to type. Note the locator system and neat pattern produced through use of pallet lift in converted storage area.



Pallet Racks and Stackers

TREBLE USABLE SPACE

PALLET RACKS and fork-type stackers gave the best cubic utilization when the Consolidated Vultee Aircraft Corporation transformed a former fish packing plant into a warehouse.

It was found possible to triple the floor space through the use of racks, which would provide for three layers of pallets. The Corporation had used pallet racks previously in limited applications, but the use of hundreds of them was a new undertaking.

It was found that the racks would pay for themselves within a year, through reduced costs.

The plan has been particularly successful for boxed materials and bulk inventory. Tool storage had always been difficult because of irregular shapes and clumsy sizes and weights of aircraft tools. Pallet racks with solid decks are now being used. Tools are stored directly on the rack without pallets.

Because the plant's cold room had a ceiling only 8 feet high, it was impractical to install two tiers of pal-

let racks there. This area, therefore, is used for extremely heavy items such as nuts and bolts with highly concentrated loads.

Mezzanines, with carrying capacity of only 75 pounds to the square foot, are used for storing lamps, paper supplies and similar products.

Conveyors, formerly used to move fish cases between the ground floor and the mezzanine, were left in place. They now provide an efficient handling system between floors for light materials.

Before Convair moved in, the 150,000 square foot cannery, with its rambling buildings, contained processing vats, cookers, conveyors and other installations. A shortage of warehouse space in San Diego had posed a serious problem for Convair when the expanding aircraft production program required an increase of 300,000 square feet in industrial floor space.

A list of fifty changes were prepared and agreed upon by the plant owners and Convair.

How much warehouse area does your plant require—now and for the future? Are you using all present storage area at highest efficiency? What is the best warehouse handling plan for your particular operation?

Here's how such questions are answered in a system that will help you . . .

Warehouse to the Best Advantage

By H. C. Christensen

THERE IS A PRACTICAL METHOD by which warehouse space requirements can be determined. It does not involve a fixed mathematical formula. The number and variety of factors involved in common warehouse operating practices preclude the possibility of establishing a fixed mathematical formula which will prove practical. It is in the logical use of the following procedure—to suit the specific aspects of a particular industry or type of operation—that effective results can be assured.

A comprehensive study of space requirements will commonly involve these following predominant factors:

1. *Floor Height Analysis*
2. *Estimation of Production Material and Finished Product Volumes*
3. *Conversion of Material and Product Volumes (to Net Space Value)*
4. *Determination of Average and Net Storage Heights*
5. *Net Area Determination*

The author, H. C. (Chris) Christensen, is Coordinator of Material Handling Engineering for Sylvania Electric Products Co. He has spent 18 years in various Industrial Engineering and Management capacities—with American Radiator and Standard Sanitary Corp., DuPont-Remington Arms, American Home Products Corp., Popular Science Pub. Co., and National Biscuit Co. He is Chairman of the New York Chapter of the Society for the Advancement of Management, Material Handling Division; and a Director of the N. Y. Chapter, AMHS.



6. *Floor Area Utilization Analysis*
7. *Efficiency Allowance*
8. *Related Functional Allowances*
9. *Expansion Allowance*

Factor 1: Floor Height Analysis

Data Sheet (A) covers basic differences among warehouse stacking and handling methods in use today. If two or more stacking and handling practices are planned for use within a single structure, and appreciable stacking height differences are involved, an analysis should be made independently for each practice—i.e., should half of the warehouse contain a Unit Container system and the other half a Pallet Unit Load system. The total of the results of each study will represent the area required.

Within this study of floor height planning, allow a minimum of 18 inches of clearance between the top of stock and sprinklers, where installed or planned.

Factor 2: Estimation of Raw Material and Finished Product Volumes

The "bank," or reserve quantities of production material and finished product to be planned for, should be calculated in detail, by qualified personnel, in relation to sales and production planned. The "bank" of *production materials* (representing the days, weeks or months of supply volume to be warehoused consistently) will be based upon such values as: volume purchase discounts and freight rates, availability, perishability, sales seasons, strike shortages, etc.

The "bank" of *finished product* will be based upon such values as: time required for distribution to the customer; economical production volumes; possibilities of production shutdowns caused by accidents, plant strikes, power failures, rail and motor truck transport strikes, etc.

A not uncommon oversight in planning of this nature occurs when companies build plants for one shift operation, wherein warehousing is planned to handle the materials and product of one shift only.

Increased production which frequently becomes necessary is achieved by instituting a two or three shift manufacturing operation. Although this often becomes

DATA SHEET (A)

There are four basic warehouse stocking and handling practices prevalent today:

1. Unit Container System

This involves the stocking and handling of merchandise in its shipping container and without the use of skids, pallets or other unit transport instruments. The common storage height in this practice averages seven feet.

2. Skid Unit Load System

Here is involved the loading of multiples of merchandise, in shipping container on a skid. The common storage height in this practice averages six feet, including skid height. Although skid loads can be tiered, one load over another, when certain types of product are handled in containers strong enough to support the load, this is the exception rather than the rule.

3. Pallet Unit Load System

A practice similar to that of the skid unit load with the following exception: While the skid, with its four corner legs, and when used to tier loads one over another, permits weight distribution only through the four legs (to the four corners of the merchandise on the top layer of the load below), the standard two-faced pallet permits even distribution of load weight, through its full bottom surface, to the top layer of the load below.

Further, the average skid is seven to nine

inches high in itself, whereas the average pallet is five to six inches high; thus a vertical storage height saving of one to four inches per load is experienced by use of pallets vs skids. The common storage height in this practice averages fifteen feet, including pallets. However, considerably higher tiers are possible, depending upon plan view load sizes and weight of materials, and with the use of fork trucks with lift ranges over 130 inches.

4. Bulk

This varies from the foregoing in the degree of volume and manner of transporting materials. Whereas Practices 1, 2 and 3 more commonly use Industrial Trucks, electric or gas powered, high and low lift, fork and platform types, and tractors—for transport of loads throughout a plant, bulk handling is performed more commonly by means of conveyors, tubes and pipes.

Flour, sugar, a variety of aggregates, powdered and granular chemicals of many types are conveyed by such equipment as screw, bucket, belt, and pneumatic tube conveyors from the plant receiving station to storage in numerous kinds of bins and hoppers. Oils, gasses, syrups, liquid chemicals and the like are piped to large tanks. Necessarily, the procedure contained herein for the Calculation of Warehouse Size will not be usable for bulk stocking and handling practices.

possible with little or no increase in production equipment or manufacturing area, the warehousing function becomes a problem. Either material and product "bank" (or reserve quantities) must be cut drastically, in inverse proportion to increased production, or additional warehouse space must be rented, purchased or constructed.

If existing inventory data is to be used as a basis of computing storage item volumes, the following caution is suggested: Avoid the "guessimation" of normal stock volumes and the use of year-average volumes. The monthly inventory graph shown was developed upon a dollar volume base and serves as a reference for the following:

This graph illustrates the danger in using monthly inventory figures, which will not reveal interim peaks. You will note that the "average-stock," line "B," would prove a poor basis upon which to plan a new or expansion warehouse. Line "A" is the normal stock volume upon which computation *might* be based if volumes *during* a month did not appreciably exceed the volumes represented on the graph at the beginning or end of each month.

(More on next page)

AREA UTILIZATION EFFICIENCY FORMULA

To determine the proportion of net usable floor area actually utilized:

1. Compute the gross area involved within the walls or partitions, etc., bounding the area concerned.
2. Deduct from this figure, the area lost in stair wells, offices, columns, elevators, air shafts, radiators, etc. The difference will be the NET USABLE AREA.
3. Compute the area to be actually occupied by equipment, materials, stock and supplies, etc., which are pertinent to the operations contained in the area studied. This resolves to AREA UTILIZED.
4. The ratio of AREA UTILIZED to NET USABLE AREA resolves to the AREA UTILIZATION EFFICIENCY.

WAREHOUSE TO BEST ADVANTAGE

Continued

However, if a condition existed wherein high peaks (*D*) developed, in pattern, at the end of the first week of each month (July, Aug., Sept. and Oct.) this would seriously depreciate the value of using line "A" as a base.

If line "A" on the graph has been used to compute warehouse requirements, the "peak" volumes would have to be stored in outside warehouses. Therefore, line "C" would be the inventory volume upon which a warehouse, to fully house stock, should be based.

Factor 3: Conversion of Material and Product Volumes to Net Space Value

The material and product "bank" or reserve quantities, by physical size of each item involved, should be converted into the cubic feet of space which each item-quantity will displace. The total of the space displacement values of all item-quantities will represent the *Net Space* required for *all* item-quantities.

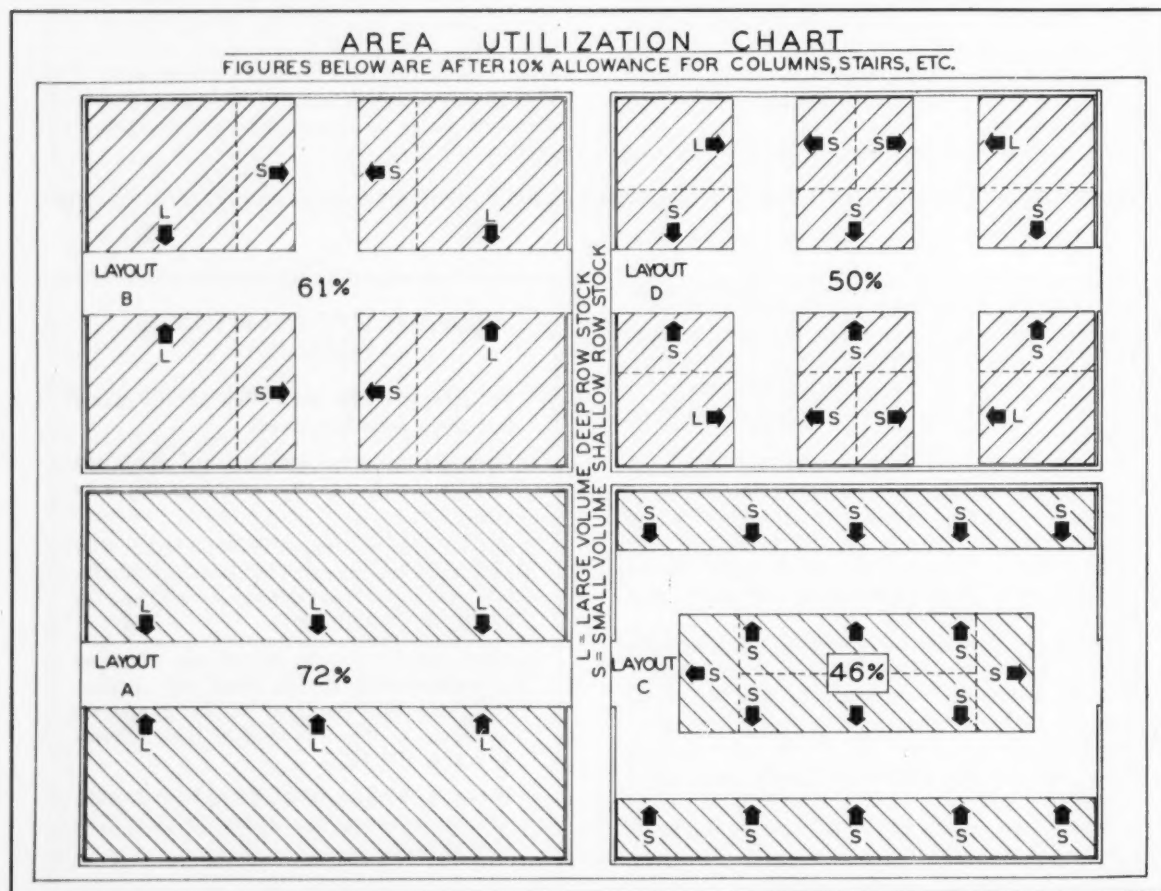
As an example, if it had been determined that a reserve of 1000 lbs. of material "X" was required, and such item was packed in 100 lb. boxes, having a dimension of 12 x 24 x 36 inches, the 10 boxes,

each displacing 6 cubic feet, would require a total of 60 cubic feet of space.

Except for items which will nest, material and product containers will be considered hexahedral (box) in shape in computing their space displacement values—i.e., a cylindrical barrel's (oils, coolants, etc.) displacement will be determined by multiplying the square of its diameter by its length. In the case of a barrel having a larger diameter at the center of its length than at either end, the larger diameter will be considered the barrel diameter. In the case of loose shaped paper and cloth bagged items, such as powdered chemicals, sugar, flour, etc., these will be treated similarly, upon determining the *average* thickness, width and length of loaded bag. Conical frustum, pyramid, and other such shapes will be analyzed and treated similarly.

Factor 4: Determination of Average and Net Storage Height

Even within one type of warehouse practice (see Data Sheet A), it may not be possible to store all stock to a single fixed height because of varying con-



tainer sizes, etc. Further, packaging design changes often make it difficult to attempt exact, long-term forecasting of merchandise case sizes and weights. However, the average height with relationship to the items to be stored must be computed carefully. If it is found that there will be appreciable differences in stacking heights of items *within* one practice (see Data Sheet A), the cube space value determined under Factor 3 should be analyzed as follows:

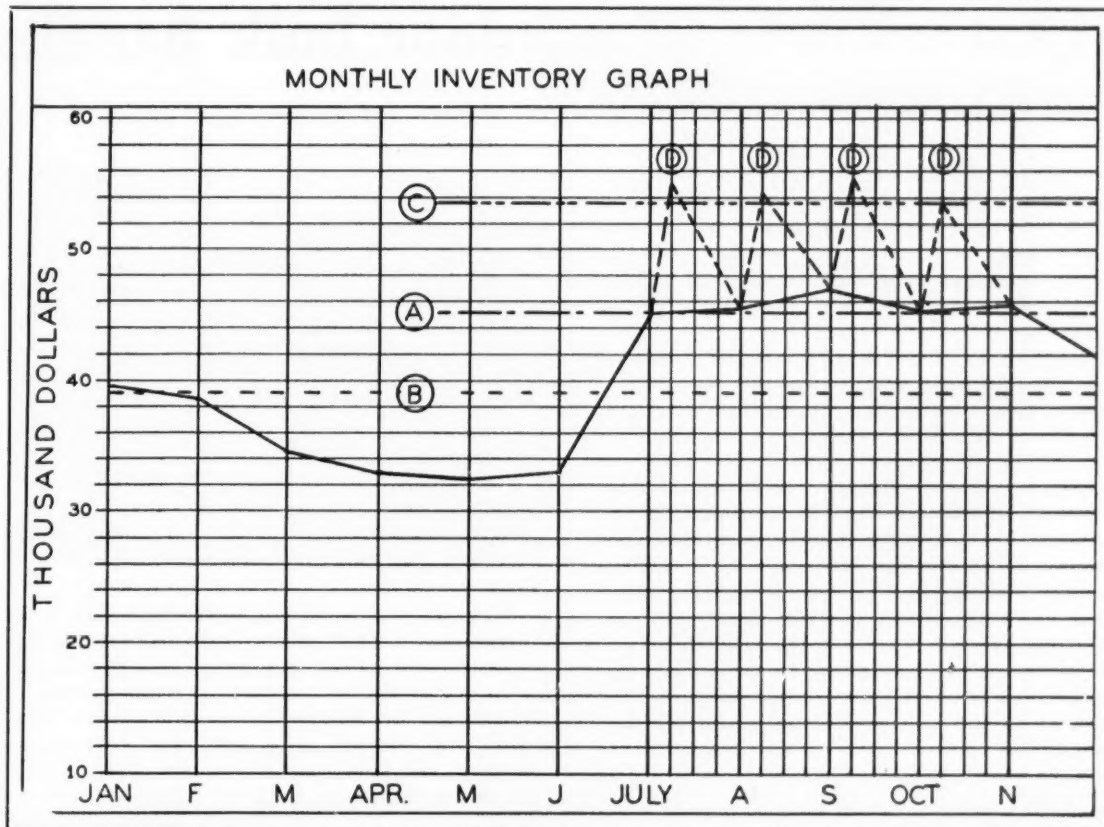
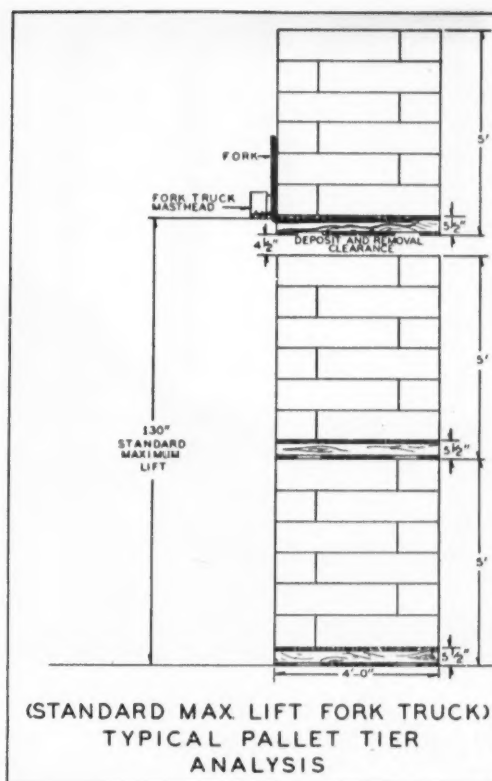
Warehouse item space values should be segregated into groups representing appreciably variant stacking heights—i.e., if among 100 items, 50 were capable of stacking to an approximate height of 16 ft.; 25 to 14 ft.; and 25 to 12 ft., the space (cubic) total for each group should be determined individually.

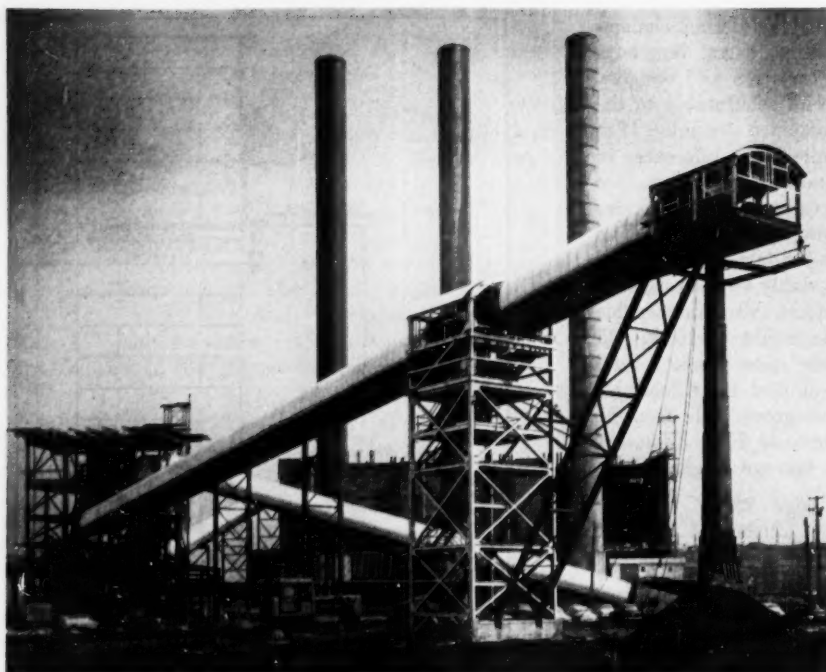
The average height of each group will then be treated as follows: In the case of *Unit Container* practices (Data Sheet A), the average height will be

(Continued on page 88)

IN PALLET UNIT LOAD SYSTEM, high efficiency is attained in vertical storage. Higher tiering depends upon plan view load sizes, weight of materials, and use of fork trucks with lifting ranges over 130 inches.

GRAPH BELOW illustrates danger in using monthly inventory figures, which will not reveal interim peaks, to compute storage item volumes. Line "C" is inventory volume upon which a warehouse should be based.





CONVEYOR system at the new Eastlake Plant of Cleveland Electric Illuminating Co. takes coal from hopper below car dumper and either sends it for use in boilers or to stacker for storage in yard where it is later recovered.

New Technique CUTS COST of outdoor bulk handling

By C. A. Dauber

Chief Civil and Mechanical Engineer
Cleveland Electric Illuminating Co.

A FIFTY PERCENT REDUCTION in the cost of handling and storing coal will be achieved through several innovations at the new plant of Cleveland Electric Illuminating Company, in Eastlake, Ohio. This will be one of the very few large outdoor bulk material handling operations in which mobile equipment and belt conveyors will do the greatest part of the work. The coal storage area will be in close proximity to the plant.

A diesel locomotive will push loaded cars onto a track scale, where the weight of the cars will be automatically recorded. The cars will then travel to a rotary car dumper, which will empty the coal into a pit where it will fall onto a system of conveyor belts. These will carry the coal either into the plant, or send it to storage.

To put the coal in storage, it will be fed to a stacker, from which it will be carried away by carry-all scrapers. In reclaiming, these will dump into a hopper

where coal will fall onto a belt conveyor.

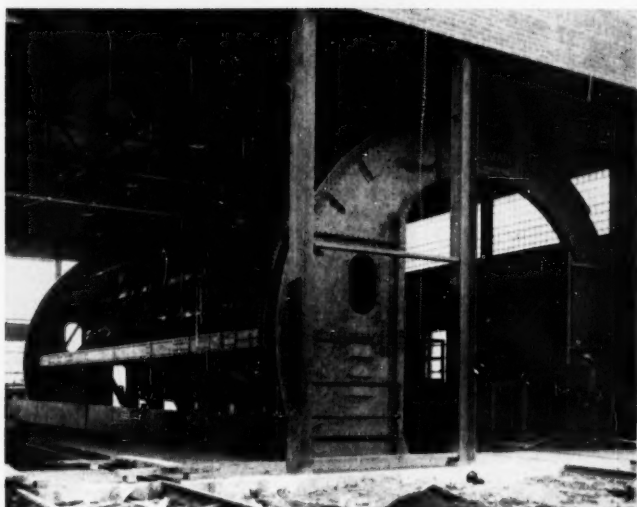
When the new plant generates its ultimate full load of more than 1,000,000 kilowatts, it is expected to handle 8,000 tons of coal a day in normal operation.

We plan to be able to dump enough coal into the plant, and to take care of any storage of coal required, in one shift. We will try to do it in seven hours. The hour remaining is expected to be devoted to inspection of belts, cleanup work and the like.

The economy of the system at Eastlake will be due largely to the proximity of coal storage to the plant. At the company's Avon plant, on the west side of Cleveland, coal storage is approximately 1000 feet away.

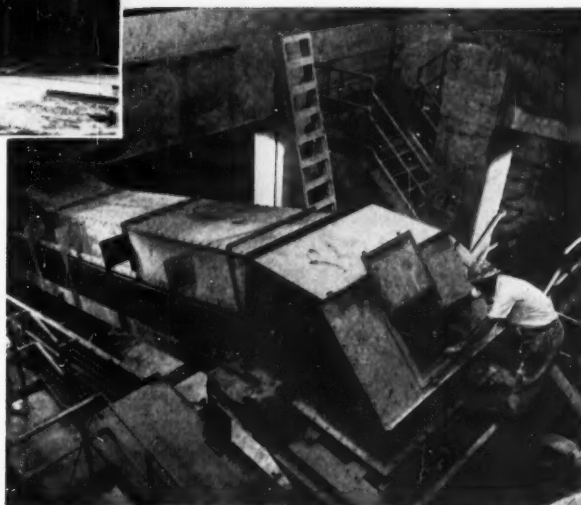
When the coal is shipped to the Avon plant it is dumped into a pit. A gantry crane then takes it out of the pit and up into the storage pile. A bulldozer levels out the pile and compacts it. When we reclaim the coal for use, we have to load it into freight cars again, haul the cars up a spur track to the plant building, and then weigh the car and dump it. The coal is weighed on the dumper.

(Continued on page 78)



CAR DUMPER receives coal after it is weighed. When the car is spotted on the dumper the coupling is broken and the car clamped down automatically. Dumper then is turned 135-degrees and coal falls into hopper.

COVERED CONVEYOR belt below car dumper takes the coal from the hopper. The coal is then picked up and carried above ground where it is sent either to the stacker for storage or to plant.

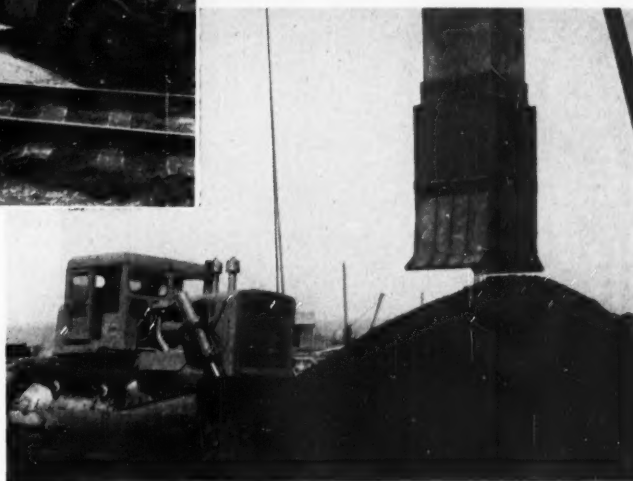


IN HALF



CARRY-ALL SCRAPER has twin engines, with power drive at both ends. Rear engine eliminates the need for a bulldozer to assist the scraper, thus reducing manpower required in recovery operation. Scraper can handle 250 tons of coal an hour.

STACKER IN YARD has telescopic chute to ground. Chute automatically rises in three-foot stages as the coal pile heightens. Bulldozer spreads the coal, which is picked up by carry-all scrapers, 18 tons to a scoop.



Door Controls And What They'll Do

TO DEMONSTRATE what door controls had done for his plant, the engineer climbed into a fork truck, started it forward. He looked at his watch, hit the door opening switch with his right hand, went through, touched the switch on the other side, and watched the door close.

"Ten seconds from switch to switch", he said, "and it used to take a fast man about a minute and a half to get through the old, manually operated doors! He had to stop the truck, get off, push the door open, climb on the truck, go through, get off, push the door closed, and get on to start up again. Figure for yourself the time we save—about 80 seconds per trip. If we have 100 trips per shift we save over 2 hours of working time. And that's 2 hours, also, when we aren't trying to heat

all the outside. At that rate it isn't hard to figure how soon automatic doors pay for themselves. Besides, we don't have banged up doors any more."

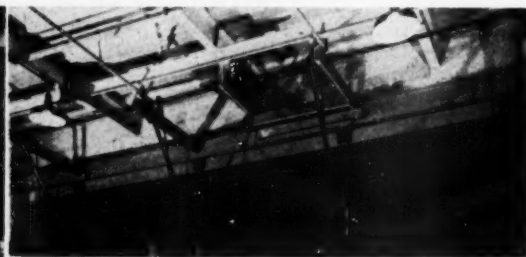
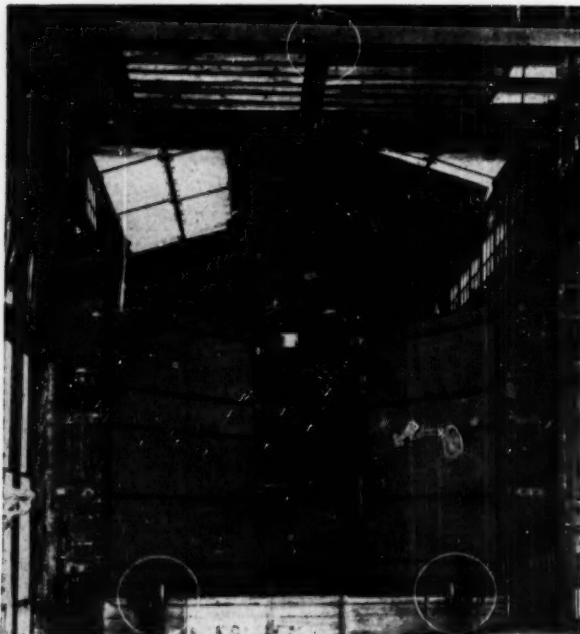
The man talking was Vincent Halsall of American Type Founders, in Elizabeth, N. J., where controlled doors are considered an integral part of the material handling system. There, much of the handling is done by fork trucks travelling between buildings, and the door equipment was installed primarily to reduce heat loss in winter.

The time saved might be even greater with photo-electric controls, but there are factors (later discussed) which make magic eye operation impractical for this particular installation.

The ATF installation is one of those that is to be

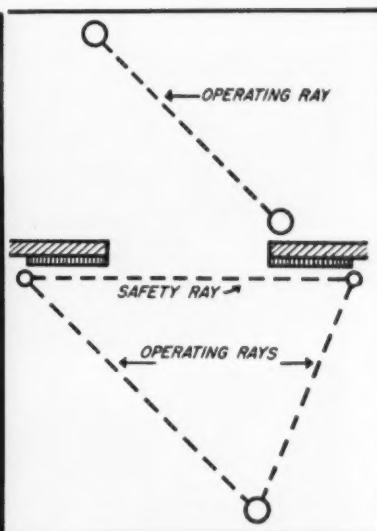
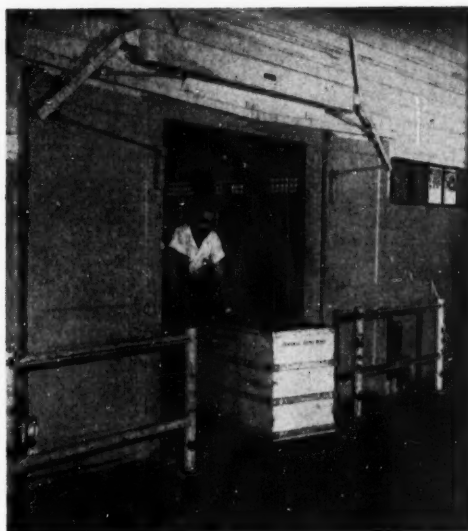


REMEMBERING to close doors is easy if pendants or switches cannot be avoided.



EASILY CONTROLLED complex door arrangement accommodates all kinds of traffic at this loading dock. For in-and-out movement of vehicles or pedestrians, bi-parting swinging doors are motor operated (bottom circles). When crane is required, top-hinged swinging door is controlled by separate drives, as shown in enlarged section above. All doors can be controlled from dock or by crane operator. Automatic stops prevent crane from passing when doors are closed.

FULLY AUTOMATIC, photoelectric doors have controls located to open doors for traffic approaching at angles and in either direction through door (see schematic sketch). Installation is in textile mill, to maintain temperature & humidity.



described—after some general notes—to show where and how industrial door controls can be used to advantage. These examples are of typical installations, but manufacturers say practically any size or type of door can be operated by remote control.

Factors Bearing on Control Selection

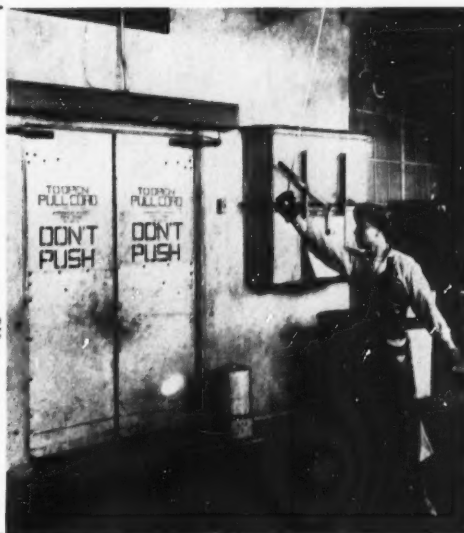
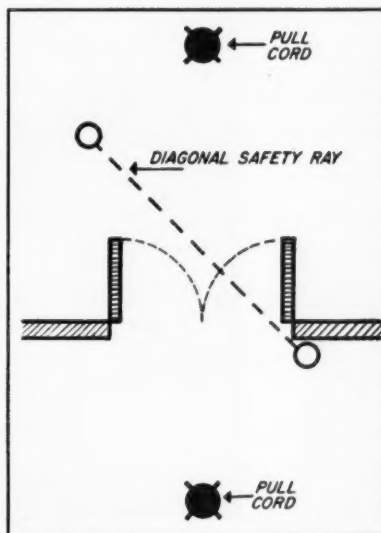
Industrial doors can be controlled by the following means: photoelectric, pull cord, push button, or mechanical. Combinations of any—for example photoelectric and pull cord—are frequently employed. The unit best suited to a plant must be determined after consideration of such factors as traffic, type and density; plant layout, type of products manufactured; handling methods employed; proximity of employees working in the vicinity of doors; and the use made of areas adjacent to doorways.

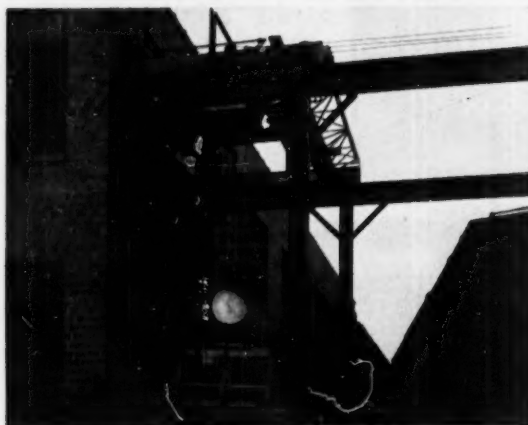
Actuating mechanisms can be pneumatic or electric. The time a door remains open may be adjusted to suit traffic requirements automatically, or it can be



CONTROLLED bi-parting doors at ATF supplemented by small doors to conserve heat during normal use. When higher loads must pass, these are swung up.

PULL-CORD CONTROL for semi-automatic operation of double swing doors. As shown in sketch, photoelectric diagonal ray is safety feature. When doors partly open, interrupted beam holds them. One actuate of pull cord on either side results in complete cycle.





MOTORIZED rolling door has pivoted jamb sections (top) which swing inward, after curtain is raised, to allow passage of crane. Twin switch boxes, wired to prevent conflicting operation, control door and wings.

HEAVY-DUTY TREADLE operates doors pneumatically only when weight of 550 lbs. or more applied. Sensitive door edges open them if passage obstructed.



DOOR CONTROLS

Continued

kept open by mechanical means until the passage is cleared. Also, the speed with which a door opens and closes can be regulated at will. Safeguards are built into the systems so that it is possible to operate doors from either side, and passage can be negotiated without danger of damage to controls, doors, personnel or vehicles. For additional safety, it is possible to operate doors manually in the event of power failure.

Photoelectric controls are installed in three general arrangements—with horizontal rays from sources mounted on walls, brackets or posts; with vertical rays from floor to ceiling; or a combination of both.

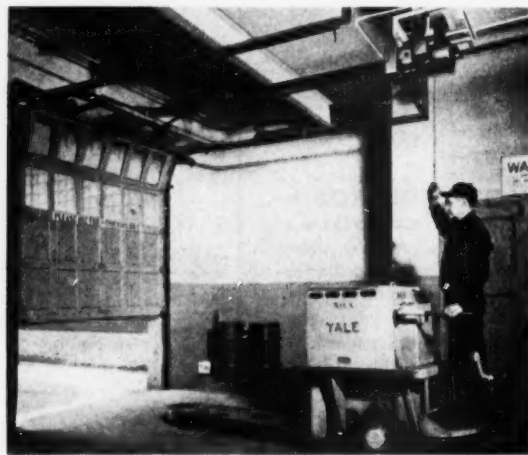
Electric Eyes Require Shielding

Photoelectric operation is fast, requires no effort on the part of personnel, and assures that doors will be closed when a passage has been cleared. The system is also suitable for use in connection with conveyors, cranes and monorails which must go through doorways. Practicality of photoelectric installation is largely determined by conditions on approaches to, and in the vicinity of, exits and entrances. These areas must be readily shielded to assure that the door won't open every time a vehicle or worker passes. If stored products or raw materials are close to doors, where trucks would trip the mechanism merely in stacking or withdrawing material—or if pedestrian travel is essential where floor plates or electric eye beams would be required—doors are almost certain to be operated needlessly. In such situations, approach pull cords, push-buttons or other physical contact controls are called for.

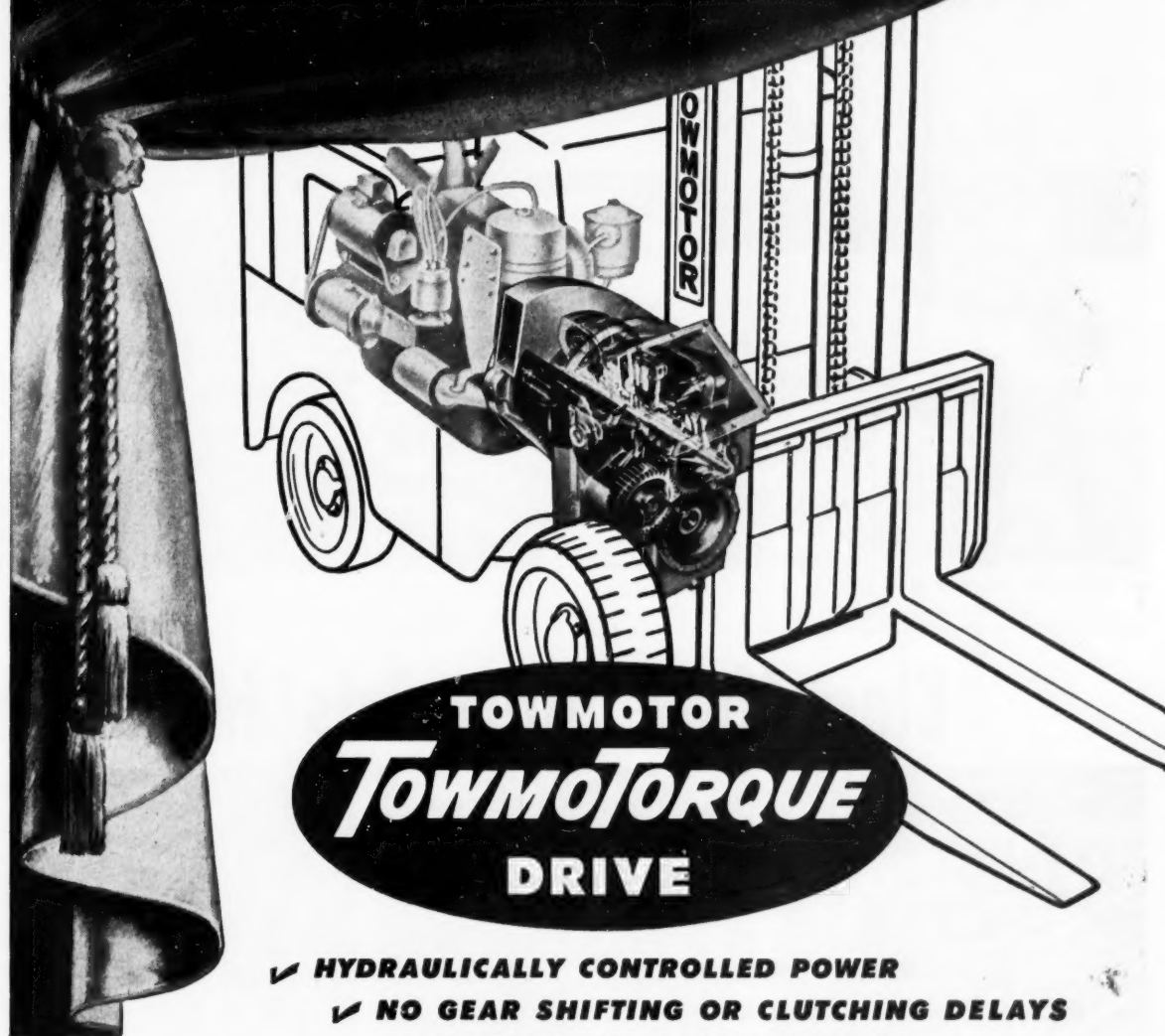
Of course, it is possible for an employee to neglect the closing operation when leaving a doorway, but a little practice will straighten that out. Also, doors

(Continued on page 82)

MOTOR-OPERATED overhead door shown controlled by pull-cord can also be used with 3-button switch to stop door anywhere, save unnecessary open area.



PRESENTING A GREAT NEW CONCEPT IN FORK LIFT TRUCK OPERATION...



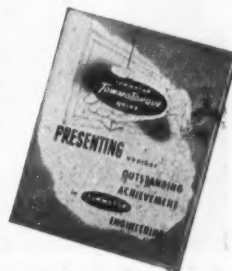
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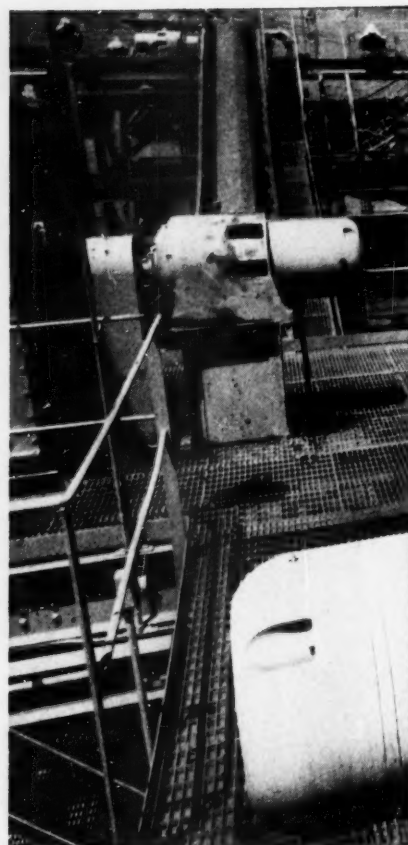
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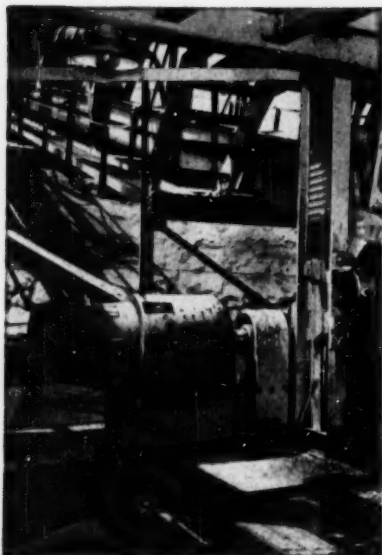
ENGINEERING REPORTS:



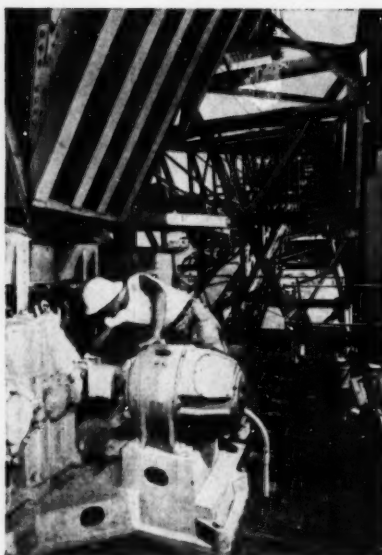
1 RECEIVING HOPPER IS FILLED by this G-E powered Bucyrus-Monahan walking dragline. Coquina shell and sand, in 10 cubic-yard loads, is fed into in-coming hopper of the on-the-spot screening process at the main plant in Bunnell, Florida.



Electrified materials handling



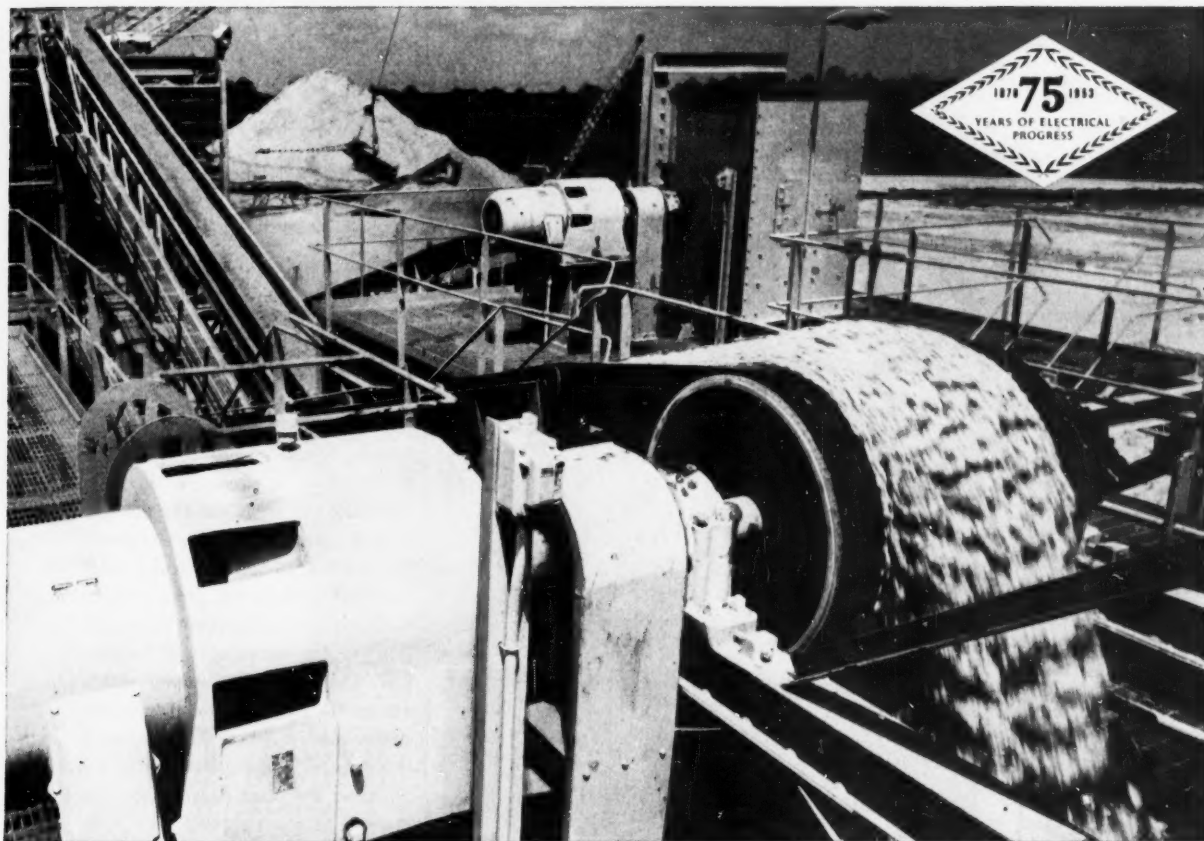
3 MATERIAL MOVES SMOOTHLY, powered by G-E gear motor, to reach peak output of 4000 barrels a day.



4 PROCESSING IS FINISHED and raw coquina shell leaves barge for completely G-E equipped main plant.



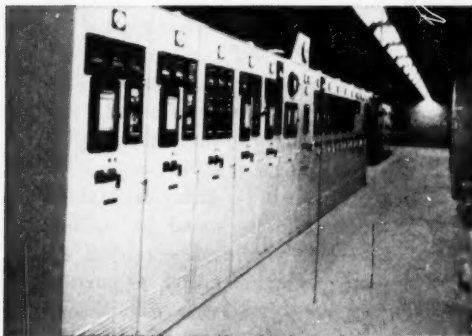
5 STURDY DRIVES, with a-c/d-c generator voltage control, power dragline which handles all coquina shell and sand.



2 SCREENING OPERATION BEGINS as conveyors carry material to various stages of continuous processing to separate excess sand from coquina shell. These five totally enclosed, fan-cooled

G-E Tri-Clad* gear-motors keep conveyor loads going through screening process in this extremely corrosive atmosphere. The entire belt system is electrically co-ordinated for uniform speed.

helps set plant output record



6 CONTROL AND DISTRIBUTION of power is handled through this G-E metal-clad switchgear.

G-E drives help provide smooth, stepless operation at new cement plant

As in any continuous-process industry, the problem of materials handling was of paramount importance at the new Lehigh Portland Cement Company plant in Bunnell, Fla. To facilitate a smooth-flowing, stepless operation F. L. Smidth, process engineers, in co-operation with General Electric application engineers, developed a complete co-ordinated electrical system integrated with each plant process. Today's results show that record output has been achieved by this carefully planned program.

To reach peak efficiency let G-E application engineers work with you and your equipment manufacturers. To see how you can modernize electrically, ask your G-E Apparatus representative about the Progressive Mechanization Program or write to General Electric Co., Section 669-7, Schenectady 5, N. Y.

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Engineered Electrical Systems for Materials Handling

Conveyor drives • Crane drives • Hoist drives • Industrial truck drives and battery chargers

GENERAL  ELECTRIC

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When you choose your PALLET RACK



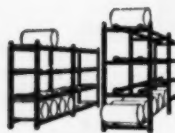
Standard Pallet Racks



Adjustable Pallet Racks



Skid Racks



Drum & Barrel Racks



Tool & Die Racks



Coil Racks & Tiering Racks

Choose American

here's an exclusive
American feature



American Pallet Rack Installation
S. S. Kresge Co. Warehouse, Fort Wayne, Ind.



American Tubular Racks are used in all types of businesses, large and small . . . there's an American Tubular Rack designed to meet practically every storage need. Send for catalog.

AMERICAN METAL PRODUCTS CO.

STORAGE RACK DIVISION

5959 Linsdale • Detroit 4, Michigan

Gentlemen: Send me more information about American Racks.

Name _____
Company _____
Address _____
City _____ Zone _____ State _____

Circle No. 147 on Reader Service Card for more information

OUTDOOR HANDLING . . .

(Continued from page 70)

Coal Weighed Immediately

At Eastlake, whether the car goes into the plant or into storage, we will immediately weigh it and bring it into the dumper. The scale at Eastlake is situated on the track, just preceding the dumper. The scale is self-balancing. One man, with electric controls in the scale house, will be in charge of both the dumper and the scale. The weight of the car of coal will be recorded on a card. On this, the operator will write the car number and the tare weight. An electronic transmitter on the scale will print the card to show the gross weight.

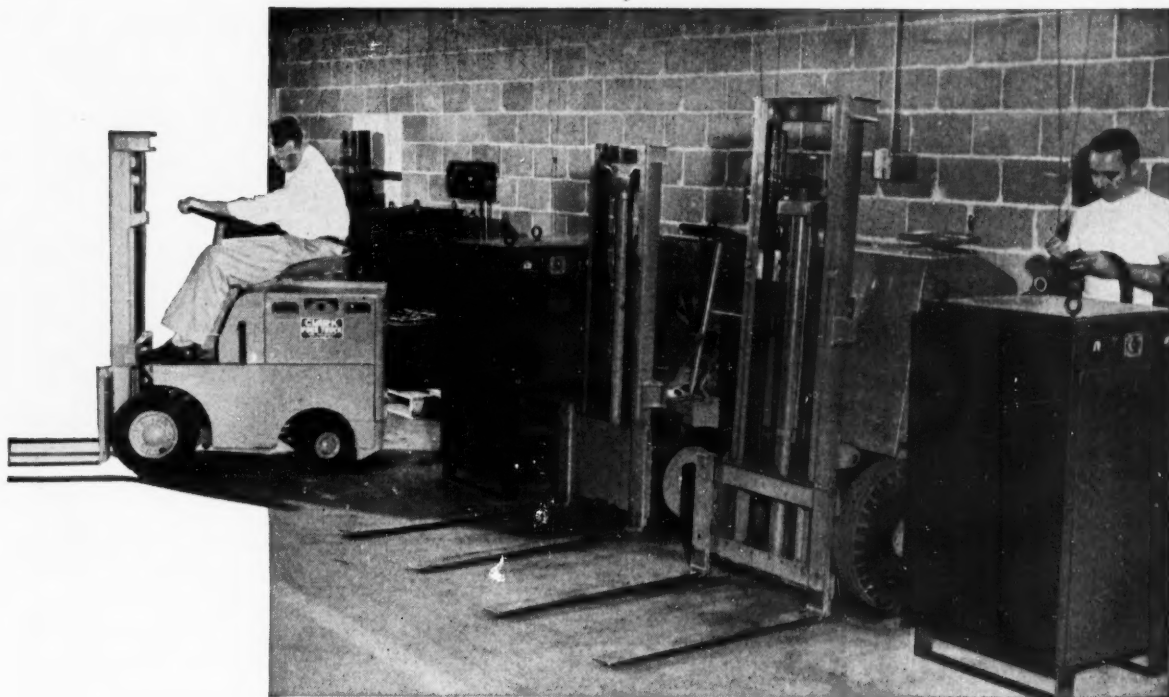
When the car is spotted onto the dumper the coupling will be broken and the car clamped down automatically. The operator at the controls will turn the dumper through a 135-degree angle. By the time the plant reaches its ultimate capacity we expect to have a second dumper installed. Each dumper will be powered by a 100-horsepower motor.

The Illuminating Company uses car shakeouts at some of its other coal handling areas, but we have found the coal dumper at Eastlake is two to three times as fast as the shakeouts for our type of operation.

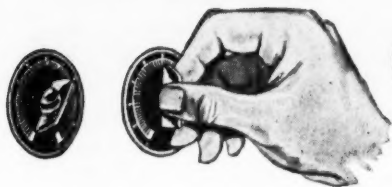
Immediately preceding the scale on the siding we will install a new arrangement of oil torches to thaw the cars of coal in winter. The torches will be strung out 300 feet down the track and be enclosed by metal fences. The torches will operate automatically. At our other plants, workmen heat the cars with hand torches.

Lumps Broken on Grid

When the coal falls from the car it will strike a grid 10 feet below the level of the track. The grid consists of a series of steel beams 18 inches apart. The coal is expected to strike the grid with suf-



Simply flip a switch and twist a dial for automatic battery charging



Battery charging becomes a simple operation with Westinghouse Rectox® Chargers servicing your trucks.

Rectox Chargers can charge either lead-acid or nickel-alkaline batteries and the specific charging cycle is selected by merely flicking a switch. As for the charging rate—it's speedily chosen with dials. All else in the charging cycle is completely automatic. There are no taps to change! It's really a fuss-free, time-saving operation.

Simplicity keynotes the Westinghouse

Chargers. There is no installation cost—just connect into your a-c line. No foundations required. With but one moving part, a cooling fan, *maintenance* of Rectox Chargers is practically eliminated.

Particularly suited for *on-the-spot charging*, Rectox units eliminate wasteful runs to central charging stations, and increase truck availability.

Ask your Westinghouse Representative for full information, or write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa. J-21795

YOU CAN BE SURE...IF IT'S
Westinghouse

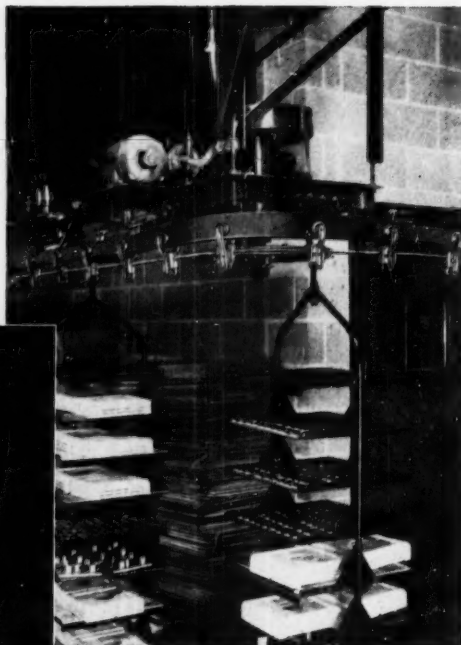


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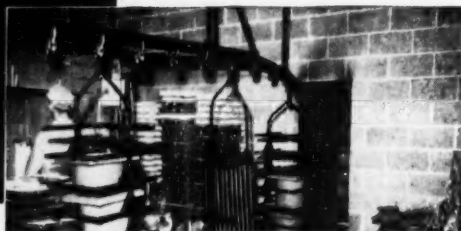
Buschman designed carriers convey up to eight trays of widely varied parts through all operations from dipping, spraying to storage and shipping. Note compact, variable-speed drive. Automatic "Oilaire" insures free running wheels despite oven temperatures.

**BUSCHMAN
CONVEYOR
strikes
new note
IN PRODUCTION
at NuTone, Inc.**

Buschman Cable Conveyor entering the baked enamel drying oven.



**continuous process
permits handling
of 50,000 parts
daily!**



Under the former batch type operation, this noted manufacturer of door chimes, ventilating fans and ceiling heaters, found production suffered from aisles jammed with parts, trucks, excessive manual handling, wasted space. A large inventory was required.

Now, Buschman "Universal" Overhead Trolley Cable Conveyor has eliminated confusion, provided live storage space overhead, extra production floor space and cut part handling to a minimum and significantly reduced inventory in process. Even when four to six different units are being run, production moves smoothly and swiftly.

Using Buschman Cable Conveyor stock parts, Nutone got a "custom installation" quickly and at low cost. When plant expansion was necessary, additional conveyor was installed almost overnight. With its bolted construction, Buschman Cable Conveyor is just as easily and quickly rearranged.

Let Buschman suggest a time, money and space saving solution for your handling problem. Write today for details.

THE E. W. BUSCHMAN CO.
4450 Clifton Avenue
CINCINNATI 32, OHIO

Canadian Licensee:
James A. McKechnie, Ltd.
Toronto 13, Canada

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OUTDOOR HANDLING

Continued

ficient impact to shatter any lumps formed in freezing weather.

Heretofore we have had considerable difficulty with frozen lumps clogging the hoppers. Some of the lumps have been as large as a business executive's desk. Occasionally, clogging has been so bad that we have had to burn open the hoppers with blow torches and break the lumps with jack hammers.

When the coal is dumped from a car it will fall onto two rubber conveyor belts each 60 inches wide with a capacity of 600 to 1200 tons an hour.

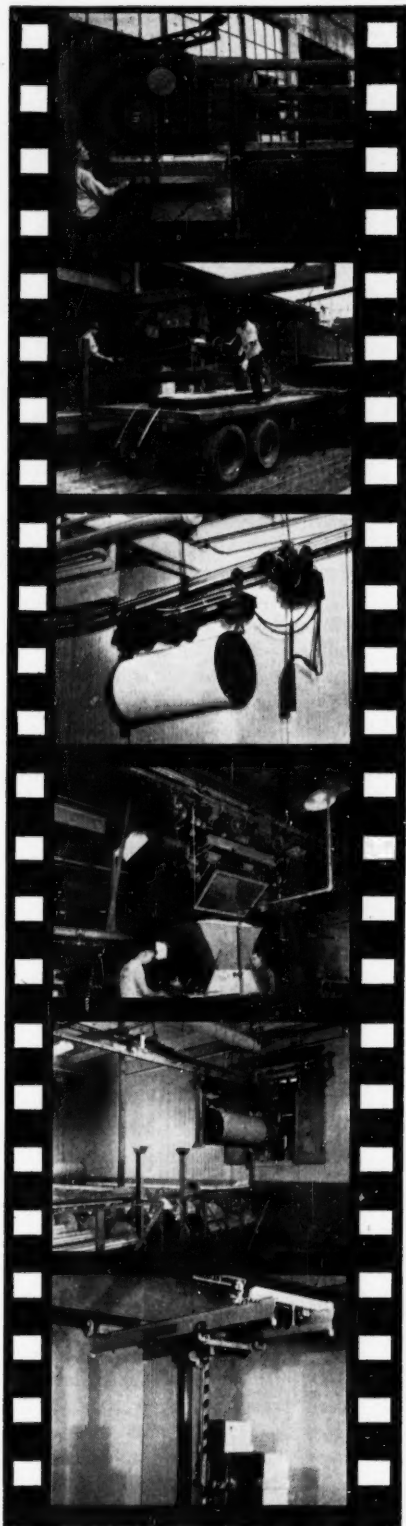
The two belts will feed another 60 inch belt which extends to a tower. There the coal may be carried in either one of two directions, or in both directions at the same time. On one belt it may be taken to the plant building where it runs through crushers, magnetic separators to take out tramp iron, a sampler, and finally to the boiler bunkers.

On the other belt it may be carried up a long incline to the stacker. The stacker has a telescopic chute to the ground. As the coal falls to the ground in a pile, wings on the side of the chute trip a switch and the lower opening of the chute is raised 3 feet. The chute goes up in three-foot stages as the coal pile heightens.

Eighteen Tons to the Scoop

The coal dumped into the live pile will be picked up by carry-all scrapers, which will scrape the coal into a bucket, 18 tons in a scoop. The scraper has twin engines; the power drive is from both ends. The rear engine eliminates the necessity of having a bulldozer assist the scraper. This will reduce the man-power requirements in the recovery operation.

Initially, the Eastlake plant will have two scrapers. Eventually it is expected to have four. Each



Quickly
removes die
blocks from
trucks

Saves \$30
each truck
unloaded

Delivers beams
to another
building

Automatic
delivery of
core sand

Automatic
transfer of
slasher beams

Stacker crane
increases stor-
age by 60 %



a 16 mm movie that discusses
handling problems common
to every industry

Before you decide upon any material handling equipment, let us loan you "Up and Over". This 16 mm film shows many installations of American MonoRail overhead handling equipment. You will see hand operated to fully automatic systems—one or more that may be particularly adaptable to your operations. The film is educational, interesting, informative and shows the way to economical, safe and time-saving material handling. Your ticket of admission is only a note to us asking for a print. It will help us if you advise the exact date, as close as possible, when you wish to use it.



THE AMERICAN MONORAIL COMPANY

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CLEVELAND 7, OHIO

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FLOW • OCTOBER, 1953

81

New 1-Ton Aluminum Packet Hand Chain Hoist Weighs Only 32 Pounds



**21 lb. lighter
than 1-ton
all-steel Packet—
due to high tensile
wrought aluminum
alloy parts**

This saving in weight is achieved by the use of high tensile aluminum alloy housing, hand chain wheel, hand chain and center frame. Though much lighter in weight, the aluminum Packet retains the drop-forged, heat treated steel hooks; the electrically welded, oval link, heat treated, steel load chain; and the mounting of rotating parts on prelubricated, shielded ball bearings of the all-steel hoist.

To obtain more information on these lightweight, spur geared hoists that are easily carried from place to place and that lift capacity loads smoothly and safely, look in your classified telephone directory under "Hoists" for your nearest Harrington distributor. Or write for Bulletin P-5.

HARRINGTON PEERLESS HOISTS

THE HARRINGTON COMPANY, 1638 W. Callowhill St., Phila. 30, Pa. • Since 1876

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OUTDOOR HANDLING

Continued

scraper is capable of handling 250 tons of coal in an hour.

Bulldozers will be used for trimming the coal pile. They will level the pile, spread it out and help pack it down.

The scrapers will not only spread the coal from the pile beneath the stacker but will also be used in reclaiming the coal from the storage yard. They will pick up the coal and haul it to the storage yard hopper where they will dump it through a grid at yard level into the hopper.

There, the coal will be picked up by a 48-inch wide reclaiming belt with a capacity of 1200 tons an hour and take it to the area beneath the car dumper. From there it will be picked up and carried to the crusher house and boiler bunkers.

DOOR CONTROLS

(Continued from page 74)

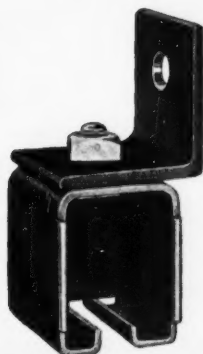
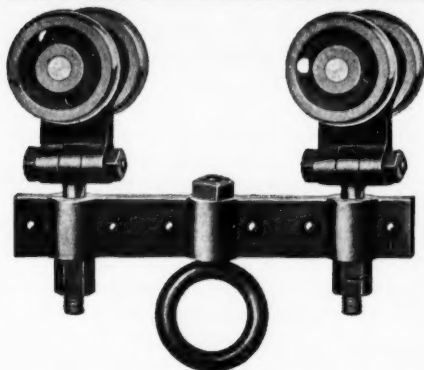
are more likely to be closed if pendants or switches are located prominently and convenient to vehicle operators. It is a good idea to attach a "flag" to the pendant cord, either white or some striking color, low enough so that a driver cannot overlook it. As for pedestrians—the small doors installed within the larger ones (with spring closure) will eliminate the need to operate the door control.

Supplementary Doors Cut Losses

There's another aspect to efficient use of door controls. That is in keeping part of the opening closed except when occasional, higher loads must pass through. This is accomplished by hanging smaller doors so that they overlap the larger closure (see the picture of the installation at American Type Founders). The economy in this arrangement, of course, lies in the reduced loss of heat, refrigeration, or air-conditioning as the smaller opening is used for normal traffic. Then,



OVERHEAD CONVEYING EQUIPMENT



simple to install your own men can do it

Minimum investment cost and easy installation by your own plant personnel. These are two big money-saving advantages you get with Coburn Overhead Conveying Equipment.

That's because Coburn track, brackets and carriers are simple in design; present no problems requiring complicated engineering. Inexpensive re-arrangement or extension can also be made at any time because of the sectional design of Coburn Overhead Monorail.

In numerous plants and factories Coburn Conveying Equipment is proving its ability to pay for itself, many times over, in greater labor efficiency and faster handling of materials. Write for Catalog #220 to Coburn Sales and Engineering, 56 Sterling St., Clinton, Mass.

THE COLORADO FUEL AND IRON CORPORATION—Denver, Colorado
PACIFIC COAST DIVISION—Oakland, California
WICKWIRE SPENCER STEEL DIVISION—Atlanta, Boston,
Buffalo, Chicago, Detroit, New Orleans, New York, Philadelphia



COBURN PRODUCTS

PRODUCTS OF WICKWIRE SPENCER STEEL DIVISION
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Make Light Work of **HEAVY PACKAGES**



Consider these
four advantages of engineered
package conveyors and what
they can do for you

1. Lower the expense of handling in receiving and storing.
2. Synchronize delivery of materials and components in production processes.
3. Facilitate preparation of the products for shipping.
4. Modernize the shipping dock and delivery to carriers.

At your convenience an Alvey engineer will visit your plant to help you determine how conveyors can save money and increase production for you. Write for an appointment.

**ALVEY
CONVEYORS
ARE APPLICATION-
ENGINEERED . . .
THEY ARE DESIGNED
TO ACCOMPLISH
A PARTICULAR
PURPOSE IN
YOUR PLANT**

ALVEY

ALVEY CONVEYOR MFG. CO.

9299 Olive Street Road • St. Louis 24, Mo.

BRANCH OFFICES IN ALL PRINCIPAL CITIES

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84

DOOR CONTROLS

Continued

when a load will not clear a reduced space, it is simple to secure the supplementary doors for that particular trip.

Note also the bracket, installed on the outside of the building at ATF, from which a pull cord is suspended. This type of arrangement keeps high traffic areas clear of obstructions, such as posts upon which control switches might be mounted. Ordinarily, switches and pull cords are mounted overhead or on any support that may be convenient to a driver.

Details on a number of installations are given with pictures and sketches. It must be emphasized that these are only representative types, that standard controls can be used on practically any type of door, with relatively inexpensive actuating installations made to suit individual requirements. The types of plants shown, too, just serve as an indication as to how door controls are a part of the material handling systems in almost every industry.

Advantage

In general, plants install door controls to: Save man hours . . . Prevent damage to doors and products (formerly caused by banging trucks and loads against doors) . . . Keep control of temperatures and humidity . . . Safely operate air and light locks . . . Provide increased segregation of departments where disturbing elements, such as noise, drafts, dust, or fumes, must be restricted as far as possible. Controls also help in the fight against rodents and vermin, "public enemies" of food and dairy operations. In them, doors must open and close quickly to keep out flies and other carriers of contamination. (Screen doors, too, can be operated by standard controls.)

For pictures and assistance in preparing this article, *FLOW* thanks the following: Clark Door Co., Inc.; Barber-Colman Co.; The Kinnear Manufacturing Co.; National Pneumatic Co., Inc.; Richards-Wilcox Mfg. Co.; Robot Appliances, Inc.; and The Stanley Works, Magic Door Division.



**CRAWLING is
often necessary
but for *SPEED***

**there's nothing like
rolling on WHEELS!**



Under many conditions crawlers are the most practical type of mounting. BUT, very often traction is not much of a problem for shovels, cranes and draglines and you can make terrific savings by using a high speed LIMA PAYMASTER on wheels.

The picture at the right shows a LIMA Type 34-M PAYMASTER crane, equipped with a 35-ft. boom, unloading coal from a barge at an eastern Pennsylvania power plant. Note that it is mounted on an undercarriage with 12 rubber tired wheels.

This LIMA 34-M is a natural for industrial plants . . . it offers fast mobility between widely separated jobs, traveling up to 8.24 MPH on a 2.75% grade and 0.94 MPH on a 22.5% grade with four-speed transmission. Just one man is needed to operate it and a single engine powers the crane motions and propels the carrier. It can lift up to 20 tons and is readily convertible to a dragline.

If you would like to know more about how the LIMA Type 34-M PAYMASTER will pay off with speed and efficiency for your operations, drop a note to—

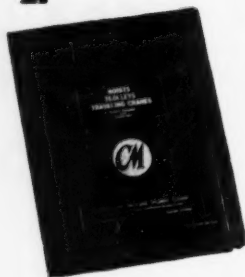
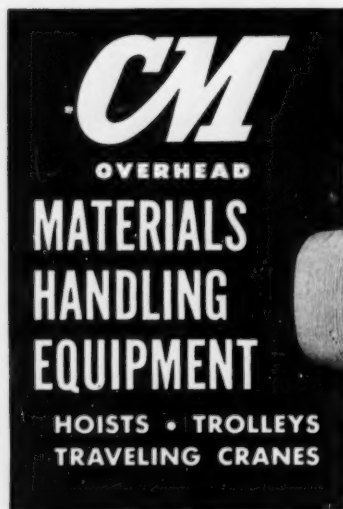


LIMA DISTRIBUTORS IN PRINCIPAL CITIES OF THE WORLD

		BALDWIN-LIMA-HAMILTON CORPORATION Construction Equipment Division LIMA, OHIO, U.S.A.
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Information Here

"HOW TO STEP UP PRODUCTION" can have as many answers as there are departments and employees in your plant. A good first move is to *know* the equipment available which could raise manufacturing efficiency, cut unit production costs and work for greater employee contentment.



EVERY PLANT EXECUTIVE should have this complete informative CM Catalog at his fingertips. Your copy sent on request.



CM METEOR

$\frac{1}{2}$ to 5 ton capacities. Fast, low headroom heavy duty wire rope electric hoist. Single and two speed models. Many exclusive features.



CM COMET

$\frac{1}{8}$ to 2 ton capacities. Portable, compact and rugged electric chain hoist. Available in push button and pendant rope control models. Plug in on 110, 220 or 440 volt power lines.



CM CYCLONE

$\frac{1}{4}$ to 10 ton capacities. Lightest weight and most efficient chain hoist. Rugged aluminum alloy construction for heavy duty and long life.

CM PULLER

$\frac{3}{4}$, 1 $\frac{1}{2}$, 3 and 6 ton capacities. Lifts and pulls at any angle. For 1,001 jobs. Low cost. Safe and easy to operate.



CM TROLLEYS

Low headroom. Tandem, Matchless and Moore styles. Plain, geared or motor driven.



CHISHOLM-MOORE HOIST DIVISION

COLUMBUS McKINNON CHAIN CORPORATION

TONAWANDA, NEW YORK

DISTRICT OFFICES: NEW YORK, CHICAGO, CLEVELAND

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CASTERS . . .

(Continued from page 64)

surface rough? Look for sharp door sills, obstructions, elevators, or other conditions that cause shock, and take any such factors into consideration. If operation is on smooth floors without obstructions, you can usually apply a caster of lighter construction than might otherwise be used.

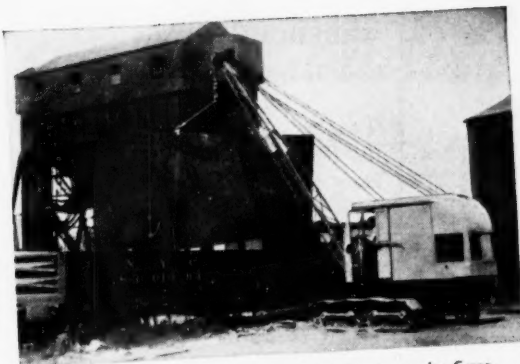
3. *What are the operating conditions?* Will there be oil, grease, water, acid or extreme heat or cold? Wheels recommended for use under any of these conditions are available, and there are special types of grease for bearings when the caster must operate in extreme heat or cold.

4. *How much movement?* How often, how far? How much maneuverability is required in swinging around corners and down aisles? When casters are to be used continuously, they should have hardened steel parts at the points of greatest wear, such as the raceways which house the bearings in the top plate, to insure easy swiveling and long life.

5. *How much draw-bar pull will be required?* In other words, how much manpower push is going to be required to start and sustain motion of the castered equipment? Since men are the most expensive source of power, the amount of draw-bar pull should be kept to a minimum. Because large wheels roll much easier than small ones, the necessary manpower push can be reduced by increasing the size of the wheel. Roller or ball bearings help, too.

After the answers to these questions have been determined, you are ready to select a caster. Caster manufacturers, in almost every case, publish a catalog which is designed to make it easy for the customer to buy the correct model and the correct wheel size and type for his particular needs. Almost all caster catalogs look complicated at first glance, since each manufacturer produces a distinct line and must therefore catalog his products in the manner best suited to their particular qualities.

However, it won't take long to acquaint yourself with the format of a manufacturer's catalog.



1933

Pfaunder Corp., purchased this Lorain crawler Crane (above) and have used it profitably over these many years for the same basic material handling described below. This veteran sold them on Lorain quality.

1953

Now, this 10-ton Lorain "TL" Self-Propelled Crane, model SP-152, (below) gives Pfaunder Corp. the added advantages of rubber-tire mobility, 7 m.p.h. speed, air-steering and easy maneuverability.



... as Pfaunder Corp., Elyria, Ohio
has for 20 years with
LORAIN CRANE METHODS

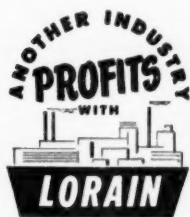
Good yard crane practices can do more than give you low-cost material handling. Bonuses in such things as increased productive factory space are possible, too, as has been proved for many years by the Pfaunder Corp., at their Elyria, Ohio, plant.

This well-known manufacturer of glass-steel vessels and related equipment for the pharmaceutical, food and dairy industries bought a Lorain crawler Crane 20 years ago for yard material handling and just recently replaced it with a modern Self-Propelled Lorain, model SP-152, to get the added advantage of rubber-tire travel speed and mobility. They use a special gooseneck boom with plate clamp on their Lorain to unload cars of raw materials; such as, carbon steel plates up to 120" x 360" x $\frac{5}{8}$ ", weigh-

ing 7500 lbs., transport them to storage rack and then to the plant door as needed for production. That's a normal sort of yard material handling job for a Lorain. But, they get a bonus advantage with their Lorain by reaching into the plant to pick up semi-fabricated steel tank jackets and transporting them to yard storage; then, moving them back into the plant as needed for production schedules — thus freeing valuable in-plant space for production. *No other type of material handling equipment could do this job as quickly, as easily, as economically.*

See your Thew-Lorain Distributor for details on Lorain Cranes — on rubber-tires and crawlers — 6 to 45-ton lifting capacities.

THE THEW SHOVEL CO., LORAIN, OHIO



THEW
LORAIN *Cranes*
FOR INDUSTRY

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GAS ECONOMY ?

**1 gallon
per hour!**

**first of
COLES
CRANES**



Bonus FEATURES

COLES advanced engineering with Gas-Electric design reflects the continuous study made of Industrial requirements. No other crane of similar capacity can show such terrific economy in **BOTH OPERATING AND MAINTENANCE COSTS**. A few users report maintenance cost **LESS** than on average fork lift truck. **ECONOMY** of gas is only one of the many **COLES BONUS** features.

A Mobile Crane is the Most Flexible Lifting Tool Yet Designed!

● The Coles Crane is the most flexible of mobile cranes, having 360° full circle swing, cantilever type boom, and reversible steering. Every conceivable **SAFETY DEVICE** is fitted as standard on every **COLES CRANE**. These devices are designed to protect the Operator, the equipment and your investment. In Fact, **COLES** is the outstanding crane—that gives the Material Handling Engineer—remote control over his operator. When considering the purchase of a mobile crane—it will pay you to investigate **COLES**.



WRITE FOR CATALOG

Information pertaining to several models with complete specifications and illustrations of the various lifting operations yours for the asking.



The name that carries weight
in material handling!

**COLES
CRANES**

COLES CRANES, INC., 942-F JOILET, ILL.

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WAREHOUSE SPACE . . .

(Continued from page 69)

the *Net Height*. However, in the cases of Skid Unit Load and Pallet Unit Load practices, the *Net Height* will be determined by deducting the total of the "thicknesses" of pallets or skids, required in each tier of loads, from the average height as determined above.

As an example, if three pallet loads, each measuring five feet in height (including pallet), are to be tiered, and the pallets are six inches in thickness, the tier will rise 15 feet—yet the useful storage height of the stored merchandise item will only be 13½ feet (*Net Height*).

Factor 5: Net Area Determination

The *Net Space* value or values determined under Factor 3, divided by the respective *Net Height* value or values determined under Factor 4, will determine the *Net Area* or *Areas* of floor surface required for the storage of the problem stock.

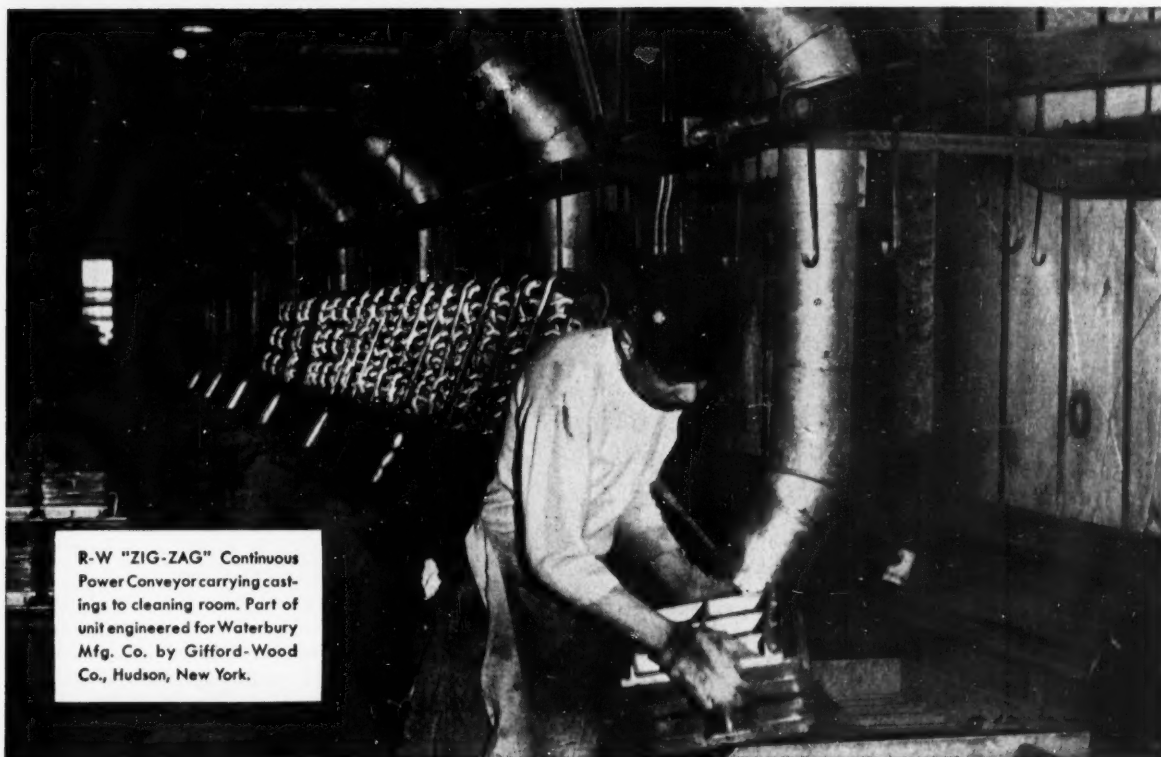
Factor 6: Floor Area Utilization Analysis

The *Gross Area* of the warehouse required for the problem operations can be determined in two ways:

1. By plotting a scale layout, using the *Net Area*, determined under Factor 5, broken up into actually usable areas, separated by aisles of proper width (to permit the use of correct mechanized handling equipment) and with consideration given to space lost by having to pattern stock in keeping with columns, power panels, doors, sprinkler valves, radiators, etc. Allowances for Factors 7, 8, and 9 (subsequently discussed) must be planned for in keeping with particular industry requirements. Having completed an accurate layout of all area required, the scale overall dimensions will permit calculation of *Gross Area* required. (See *Area Utilization Efficiency Formula*)

(More on page 90)

Modern industry chooses Richards-Wilcox Conveyor Equipment



R-W "ZIG-ZAG" Continuous Power Conveyor carrying castings to cleaning room. Part of unit engineered for Waterbury Mfg. Co. by Gifford-Wood Co., Hudson, New York.

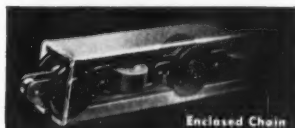
The key to materials handling efficiency is *flexibility*... the kind of flexibility you find in a R-W "ZIG-ZAG" Continuous Power Conveyor. It travels up, down, in, out and around... like water through a pipe... in most cases utilizing space that would otherwise be wasted. ZIG-ZAG moves steadily on the job, requiring a minimum of personnel and reducing bottlenecks and handling mishaps.

Because of these savings... in space, personnel, time and safety... the Gifford-Wood Company of

Hudson, New York, designed and installed a complete Richards-Wilcox ZIG-ZAG Conveyor System for the Waterbury Manufacturing Company, Division of Chase Brass & Copper Co. This unit, designed to handle castings after shakeout, effected remarkable savings in production space, overall production time and maintenance costs.

• • •

Find out how you can raise efficiency, lower costs. Write today for consultation. There's no obligation on your part.



Engineered for Economy and Flexibility

- Horizontal and vertical units alternate in a continuous chain traveling through special steel tubing.
- Complete flexibility for installation in any plant. Easily installed, easily changeable to conform to plant alterations.
- SAFE—all moving parts are fully enclosed.
- Low first costs. Low Power Factor.
- Standard horizontal or vertical curves—two-foot radius.

1880



1953

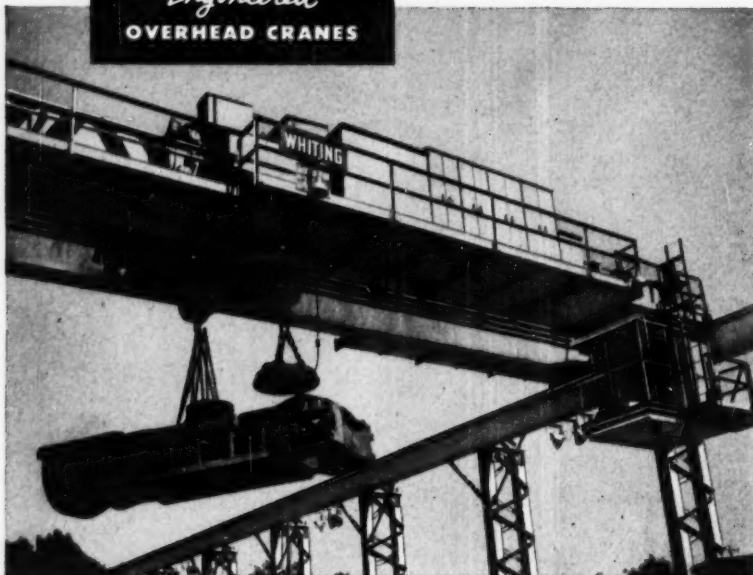
SUDING DOOR HANGERS & TRACK • FIRE DOORS & FIXTURES • GARAGE DOORS & EQUIPMENT • INDUSTRIAL CONVEYORS & CRANES • SCHOOL WARDROBES & PARTITIONS • ELEVATOR DOOR OPERATING EQUIPMENT

Richards-Wilcox Mfg. Co.

MATERIALS HANDLING DIVISION

420 THIRD STREET, AURORA, ILLINOIS

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Here's the crane that assures 97.5% DRIVE EFFICIENCY



Full Vision Cab With Magnetic Control—Provides a clear view of entire working area. Whiting design magnetic control assures smooth acceleration, improved accuracy, more protection for motors.



Herringbone Type Gears—Used by Whiting on all high speed reductions of drive units and in second reduction of hoist units for longer gear life, less impact and shock, improved lubrication!



5 to 450 Tons Capacity! Whiting cranes cover the full range of handling needs for all industries. This 115 ton capacity Whiting Crane is used in steel mill service.

The double reduction drive, designed and used by Whiting on cranes up to 50 tons in capacity, provides an overall drive efficiency of 97.5 per cent . . . much higher than triple reduction types. Elimination of excess dead weight reduces power requirements and cuts operating costs. Single, easy to remove housing simplifies maintenance of entire drive unit!

In every Whiting crane, from hook to bridge end truck, you get the proved advantages of applied experience in crane manufacture . . . for handling power that's safer, longer lasting, easier to use and to service. Whether you're lifting 5 tons or 450 tons, Whiting can help you . . . write for complete information today!

WHITING CORPORATION

15659 Lathrop Avenue, Harvey, Illinois

Other Whiting Material Handling Equipment:

The Whiting Trackmobile,
Trambeam Overhead Handling Systems,
Whiting Electric Chain Hoists.

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WAREHOUSE SPACE

Continued

2. By use of the Area Utilization Chart, and the following factors: Industries using multiple items of raw material, production components, and maintenance materials—and producing multiple product items by type and size—seldom find it possible to utilize more than 50 percent of the net usable area of a warehouse, for physical storage purposes. (See Area Utilization Efficiency Formula). In such cases the Net Area determined under Factor 5 must be doubled in order to determine the Minimum Operations Area required for the storing and handling of the problem stock. If the situation (by study of the Area Utilization Chart) is such that the warehouse can function effectively with a single main aisle and deep rows of tiered stock (as in Layout A of the Area Utilization Chart), a 72 percent area utilization efficiency can be attained. In such case, the Net Area should be increased by 39 percent to determine the Minimum Operations Area.

The Minimum Operations Area does not provide for service requirements of area within a warehouse operation—for example, order assembly, toilets and offices.

Factor 7: Efficiency Allowances

The following allowances require careful consideration in each space planning problem. The values suggested cannot be used as exact data inasmuch as influencing conditions vary greatly between industries.

(A) 25 percent of the Net Area determined under Factor 5 will be added to the Minimum Operations Area to allow for the fact that it is impractical to keep stock areas fully loaded. Experience indicates that a continuous attainment of 80 percent efficiency in utilization of assigned stock space is optimum expectancy.

(B) 25 percent (approximately) of the total of the Net Area and the allowance value of (A) above should be added to the Minimum Operations Area (in Skid

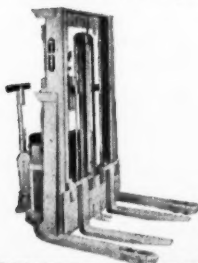
MOTO-TRUC

Service-ability

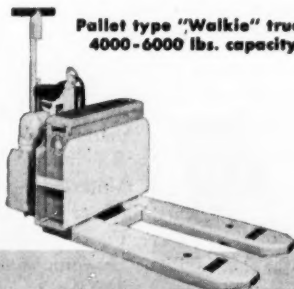


GOOD truck maintenance begins right in your own plant. The quick service features of MOTO-TRUC mean less down time . . . Less cost to you for repairs. Get the complete facts on the truck that offers the utmost in trouble-free operation . . . and remember . . . THERE'S A MOTO-TRUC FOR EVERY PURPOSE. Send for Bulletin No. 53.

Hi-lift "Walkie" type
3000-4000 lbs. capacity



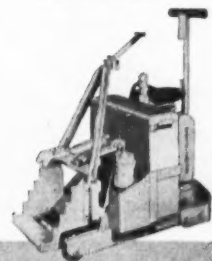
Pallet type "Walkie" truck
4000-6000 lbs. capacity



Platform "Walkie" type
4,000-10,000 lbs. capacity



Grip-All Tractor



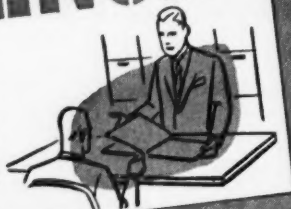
The **MOTO-TRUC Co**
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Pallet . . . Platform . . . Hi-Lift Trucks
LARGEST EXCLUSIVE MANUFACTURER
OF "WALKIES"

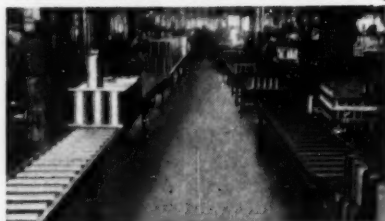
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When You Rely On "STANDARD CONVEYOR"**

EXPERIENCE

• The range, versatility and flexibility of Standard Conveyor equipment have been developed in more than 45 years of service to business and industry. You can rely on Standard Conveyor for the right type of equipment to best serve your needs.



For Production • Assembly • Packing Lines • Roller and Belt Conveyors



• To keep things moving—on production, assembly, processing or packing lines—mechanize your handling with conveyors. Standard furnishes all types—power and gravity, belt, roller, slat, chain, push-bar, sectional. Write—address Dept. FL-1053.

For Storage • Shipping • Receiving Depts. EXTENDOVEYOR portable Conveyors



• Compact, mobile, self-contained powered belt conveyor. Work it like an accordion—make it long or short—slope it up or down. Easily maneuvered in confined areas. Handles commodities up to 150 lbs. Write for Bulletin—address Dept. FL-1053.

For Lifting or Lowering • Floor to Floor the INCLINEBELT



• Move packages up or down from floor to floor continuously. Compact, simple to install and maintain. High continuous line load capacity for any floor elevations, belt widths of 8, 12, 14, 18, 24, 30 and 36 inches. Write for Bulletin 63-D, address Dept. FL-1053.

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CONVEYORS VERTICAL LIFTS • PNEUMATIC TUBE SYSTEMS

Circle No. 123 on Reader Service Card for more information

WAREHOUSE SPACE

Continued

and Pallet Load Practices only) to allow for lost space between tiers due to:

a. Underlap patterns of stock on a certain proportion of pallet and skid loads.

b. Space tolerances required between tiers to allow normal insertion and withdrawal of loads.

As examples: A four-foot square pallet system with a 6 inch clearance factor (between tiers) would resolve to a floor area requirement of 20.25 square feet per 16 square foot pallet. The 4.25 square feet of floor space lost would require provision for 26 percent more floor space per pallet load. A 3 x 4 ft. pallet with 6 inch clearance would require an additional allowance of 31 percent; and a 3 x 3 ft. pallet, 36 percent.

On the other hand, a 4 x 4 ft. pallet with a 3 inch clearance factor would only require an additional allowance of 12½ percent. (This, incidentally, illustrates the space saving value of using the largest possible pallet and skid sizes in warehousing operations).

(C) Ten percent of the total of the Net Area and the allowance values of (A) and (B) above should be added to the Minimum Operations Area to allow for general emergencies; i.e., breakdown of mechanical equipment during periods of volume receipts; temporary storage of large volume items to be received and reshipped within 24 to 48 hours.

Factor 8: Related Functional Allowances

In addition to these efficiency allowances, provisions must be made for:

Receiving Area
Material Inspection Area
Order Assembly Area
Packing Area
Shipping Area
Toilets, M and F
Dressing Room
Lunch Room
Maintenance and Sanitation Room
Battery Chrg. Area
Mech. Equip. Strge.
Office

(More on page 94)

FLOW • OCTOBER, 1953

There's a Yale hoist for every lifting job!



• It would be impossible to list all the different *lifting* and *pulling* operations performed every day with the YALE PUL-LIFT! But, it's a sure thing that, wherever this more versatile tool is used, a maintenance or construction job is being done more efficiently than ever before...in less time...at less cost! Exclusive YALE-engineered design provides capacities up to 15 tons. And, the universal ratchet action simplifies operation...makes the PUL-LIFT as easy to handle as the most basic wrench. Investigate...find out how a YALE PUL-LIFT can save you time, money and manpower. CALL YOUR LOCAL YALE INDUSTRIAL DISTRIBUTOR FOR COMPLETE INFORMATION...he's listed in the classified pages of your local phone directory under Hoists, Industrial.

YALE*

*Registered in U.S. Patent Office

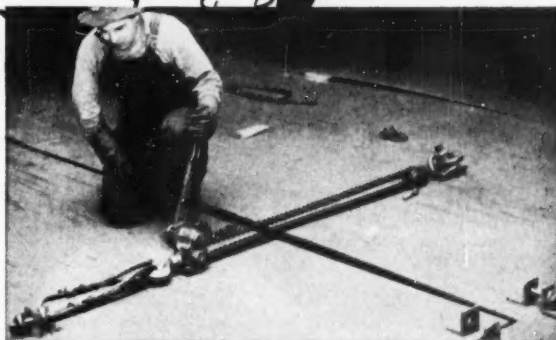
MATERIALS HANDLING EQUIPMENT

Yale Hoists are sold exclusively through INDUSTRIAL DISTRIBUTORS

Yale Gas and Electric Industrial Trucks • Yale Worksavers • Yale Hand Trucks • Yale Hand and Electric Hoists • Yale Pul-Lifts

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Locating steel plates on ship deck is just one of the countless jobs done quicker and easier with a YALE PUL-LIFT. If your business is building, public utilities, transport, textiles, metal, mining, farming...heavy or light...there's a YALE PUL-LIFT to help you keep costs down...efficiency up.

MAIL THIS COUPON TODAY

The **YALE & TOWNE** Manufacturing Co., Dept. 410

Roosevelt Blvd. & Haldeman Ave., Philadelphia 15, Pa.

I'm interested in lifting for less with a YALE Hoist.

☐ Please have your local Hoist Distributor call on me.

☐ Please send my FREE copy of the new YALE Hoist Users & Buyers Guide.

Company _____

Name _____ Title _____

Street _____ City _____ State _____

In Canada write: The Yale & Towne Manufacturing Co.,
St. Catharines, Ont.



FAST, DEPENDABLE OPERATION WITH *precise* CONTROL

THIS wide span, three motor, cab-controlled crane embodies exactly the features that are needed for assembly floor operations. Rapid speed of travel laterally and longitudinally—hoists of two capacities for lifting—ease of operation including precision magnetic control which is so essential in assembling vital components of valuable machines. And, of course, characteristic Euclid low operation and upkeep costs which have established an unexcelled record for repeat orders from discriminating purchasers.



THE EUCLID CRANE & HOIST CO.

1362 CHARDON ROAD • EUCLID, OHIO

WAREHOUSE SPACE

Continued

Factor 9: Expansion Allowance

If expansion is to be provided for, the total of values determined under Factor 6 (Minimum Operations Area) and 7 (Efficiency Allowances) should be increased by the proportion of the expansion planned. Before increasing the area value of Factor 8 (Related Functional Allowances), each item thereunder should be studied carefully as to whether the planned expansion will require any of these items to be increased. For example, expansion of the basic functional warehouse might not require expansion of the office, toilet, lunch room, and such facilities.

Mr. Christensen will conclude this valuable discussion next month with some general notes on planning for efficient warehouse design, layout and operation.

A BETTER WAY . . . TO MOVE MACHINERY AND HEAVY EQUIPMENT

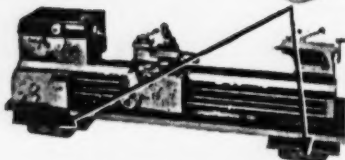
THE MIGHTY

MULTITON ROLLER SKID

UNLIMITED CARRYING CAPACITY
EASILY STORED
EASILY HANDLED
LIGHT WEIGHT



Pat. Pending



Typical of the many
MULTITON uses . . .

The first important advance in heavy equipment moving in years! MULTITON moves machinery and other heavy equipment easily — with great savings in labor. Just set tremendous loads on MULTITON and roll away.

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INQUIRIES
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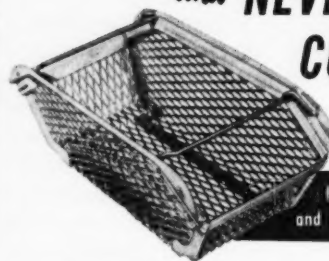
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94

CHANGE TO NESTIER

Expanded
Metal **BASKET**

and **NEVER CHANGE
CONTAINERS
AGAIN!**



It's a degreasing basket
and a "tofe-box" all in one

No rehandling parts before or after dipping in double-duty NesTier Baskets. Parts move immediately in same container to next operation on overhead or roller conveyor, pallet, skid or by hand. Two standard sizes in various sizes of mesh and perforated metals.

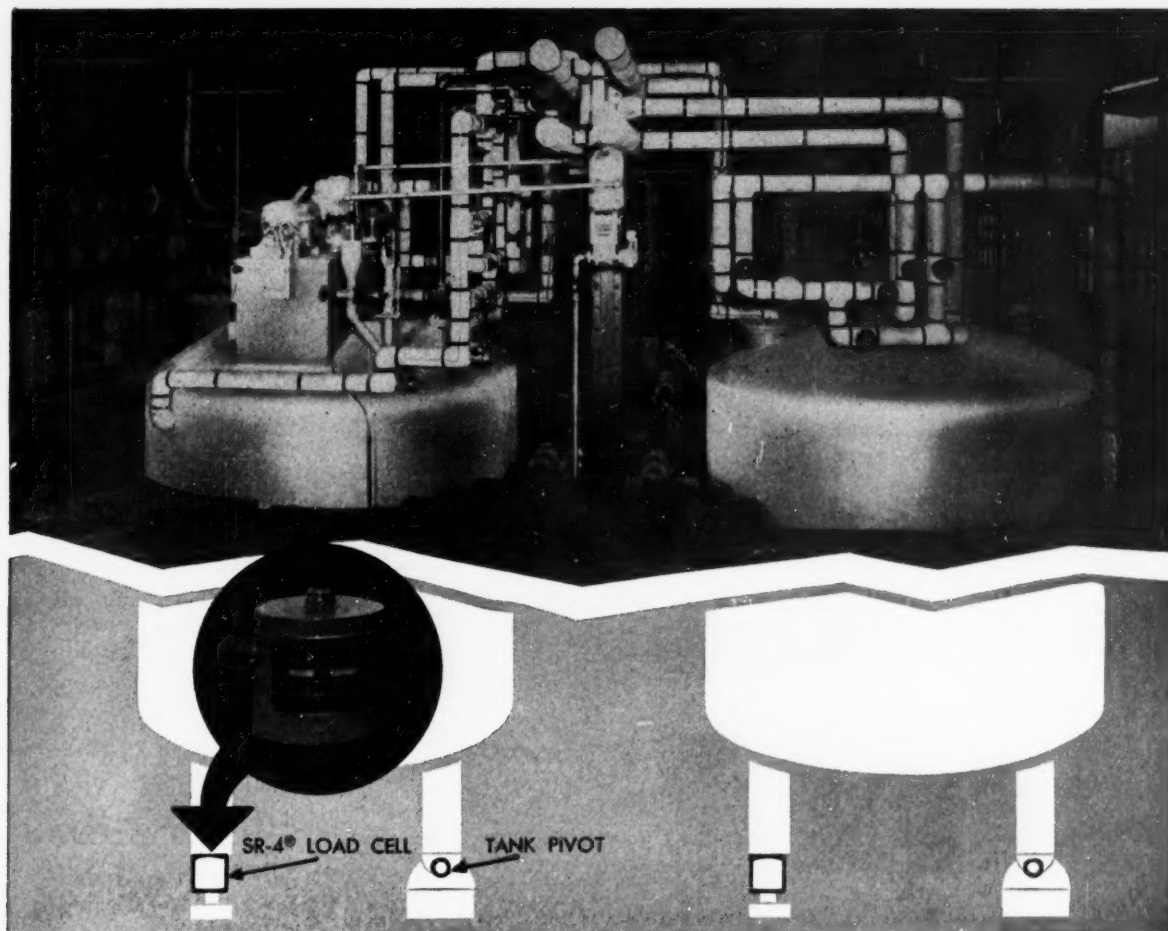
*They nest to save space!
They tier in rigid stacks!*



THE CHAS. WM. DOEPKE MANUFACTURING CO., INC.
ROSSMOYNE, OHIO

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FLOW • OCTOBER, 1953



Baldwin SR-4® Load Cells Permit Remote and Automatic Control of Latex "Batching"

THE PROBLEM:

In order to weigh liquid latex directly in the processing tanks, this leading rubber company sought a method which would require very little head room, use a minimum of steel and control various steps of each batch with $\frac{1}{2}$ of 1% accuracy.

THE BALDWIN SOLUTION:

Every requirement was met by the installation of a Baldwin SR-4 weighing system. Each 2,000 gal. tank, holding 16,000 pounds of latex, is supported by three legs. Two of the legs have rod-end bearings and the third rests on one 10,000 pound SR-4 Type C Load Cell. As the tank fills, changes in its weight are transmitted by electric cables from the cells to a switching unit and an indicator-controller on the upper floor.

This system offers these benefits:

- It controls automatically the entire batching operation, providing lights and alarms for empty and full conditions of the tank. It also has adjustable controls

between empty and full for sizing each particular batch by controlling motorized valves.

- The SR-4 system made it unnecessary to use much steel during installation. The small size of the load cells meant that the available headroom (14 inches) was ample.
- The SR-4 Cells' rugged construction and absence of moving parts, combined with good instrumentation and proper engineering, have enabled this system to maintain constantly its inherent accuracy of $\frac{1}{4}$ of 1% of capacity.
- Due to the electrical nature of SR-4 cells, they could be located on one floor and the indicating-controlling instrument on another.

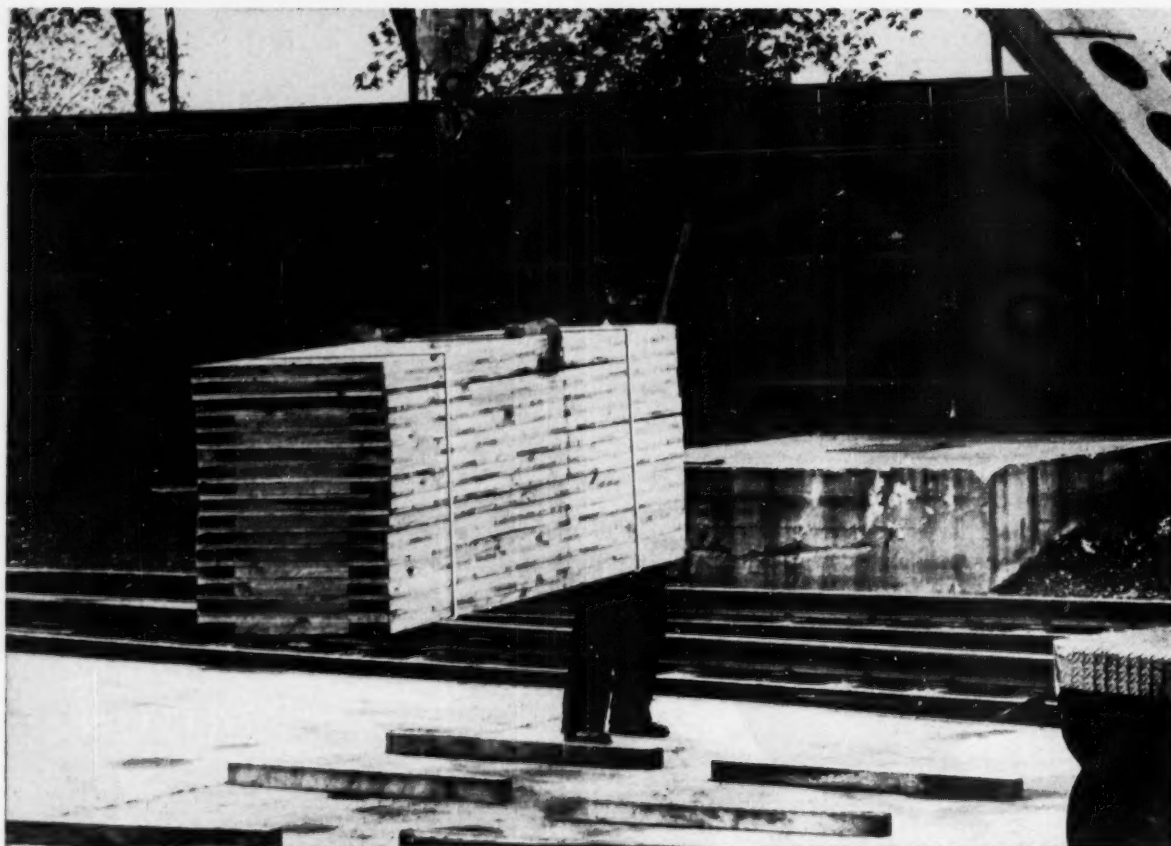
SR-4 Devices in Industry... Uses Unlimited

For measuring load, fluid pressure, or torque more accurately and economically Baldwin SR-4 devices have *unlimited uses* in industry. Write for our two new booklets on tank weighing (No. 4106) and crane scales (No. 4105). Address: Dept. 3111 Baldwin-Lima-Hamilton Corporation, Philadelphia 42, Penna.



BALDWIN-LIMA-HAMILTON

Philadelphia 42, Pa. • Offices in Principal Cities • In Canada: Peacock Bros., Ltd., Montreal, Quebec
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Crate Panels are secured with two Gerrard Round Steel Straps.

Tie it safe with U·S·S Gerrard Steel Strapping

● There is a size and style of U·S·S Gerrard Steel Strapping to fit every tying requirement from carload to parcel post. U·S·S Gerrard Round Strapping, from 8 to 18½ gauge, conforms readily to odd-shaped and circular packages as well as to rectangular cartons and crates, and to conventional reinforcement applications.

U·S·S Gerrard Flat Strapping is available in heavy-duty sizes for carload reinforcement and palletizing. U·S·S Gerrard Tools for stretching and sealing Flat Steel Strapping are among the most modern and efficient now made.

Gerrard engineers are completely familiar with good tying and packaging procedures from carload to parcel post. Let a Gerrard engineer advise you about the tying method best suited to solve your tying problems safely and economically. His advice is available free of charge. Phone, write or wire for further information.

**GERRARD STEEL STRAPPING DIVISION
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U·S·S GERRARD

Round Steel **STRAPPING** *Flat Steel*



UNITED STATES STEEL

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FLOW • OCTOBER, 1953



PACKAGING & SHIPPING SECTION

OCTOBER 1953



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An Easy Index to This Month's Advertisers

Are you looking for a particular type of packaging and shipping equipment? Listed below are advertisers according to the type of product they are advertising in this issue. We have attempted to make your job a little easier by listing them as often as possible. To use this index, find the type

of product in which you are interested . . . turn to the advertisers listed under that product . . . circle the correct numbers on the reader service card, mail it in, and you'll get complete information in a jiffy.

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VISUALIZE . . . a package. Any package. Or, better yet, visualize one for use in shipping one of your products. It may be large or small, it may be in any shape or form.

What about this package? Just how much do you really know about it? Where does it have its beginning . . . what are its functions . . . how is it affected by your material handling and production activities . . . how well does your package do its job . . . what packaging equipment does it make necessary . . . what materials and supplies contribute to the make-up of your package?

Once you start thinking along these lines, and come up with the answers to the above questions, there comes a realization that the package shipped from your plant is far more than just a container or even a combination of packaging materials. An integral part of your package is the product itself, with behind it all the engineering and production activities which led to its completion. **In a sense then, the package you ship represents, in a single unit, all the efforts of everyone and everything in your firm.**

It is important enough to be the primary subject of a major industrial exposition in Boston on the 20, 21 and 22 of this month. It is also important enough to be thoroughly studied in a special issue of FLOW'S Packaging and Shipping Section.

On the following pages, "The Biography of a Package" will develop all aspects of preparing a product for shipment and for shipping it. No specific package will be the subject of the biography, and yet specific questions about the specific package which you have visualized will be answered.

The Editors.

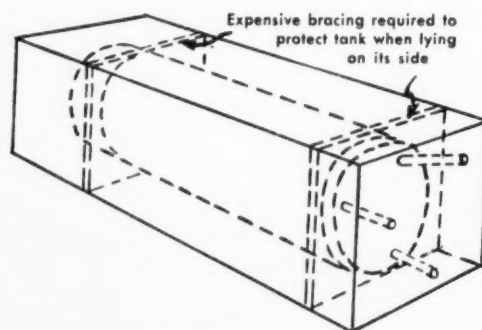
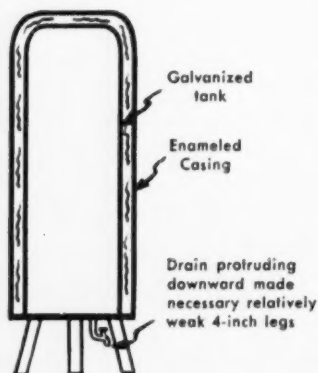
THE BIOGRAPHY OF A PACKAGE

Close cooperation between the packaging engineer and the design engineer can save considerable trouble and unnecessary expense in packaging and shipping.

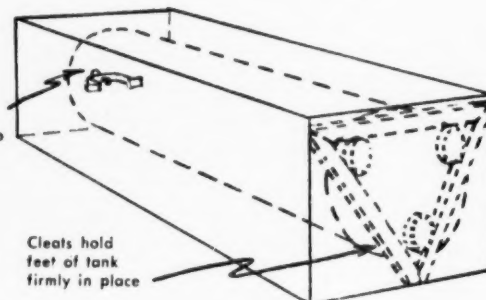
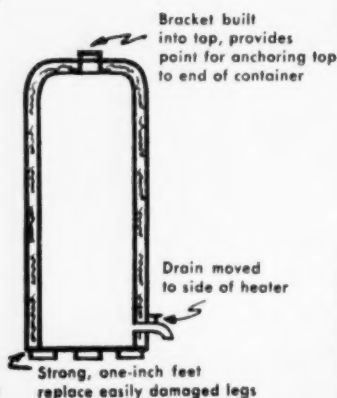
the design of a product should be accompanied by . . .

the birth of a package

➡ ORIGINAL DESIGN REQUIRED EXPENSIVE PACKAGING



➡ RE- DESIGNED UNIT CUTS PACKAGING COSTS



A water heater manufacturer was spending large amounts for packaging of units which had long legs easily damaged when package was placed on its side. By replacing long legs with one-inch feet, inexpensive cleats built into container bottom are now the only bracing required. Result: 20% savings in packaging costs.

SPENDING dollars to save dimes doesn't make sense.

Yet, in too many plants, apparent savings in the expense of manufacture are being accomplished through ingenious product design, but with concurrent mushrooming packaging costs. Regardless of whether a new product is being created, or if an old one is being modernized, packaging should be taken into serious consideration at the very beginning.

After all, the full costs on any product must of necessity include all expenses involved in the delivery of that product to its destination. Close cooperation between the packaging engineer and the product design engineer can save considerable trouble and unnecessary expense in packaging and shipping.

Effect on Product Needn't Be Great

A leading appliance manufacturer was able recently to cut packaging costs of water heaters approximately 20% through two minor changes in product design. The changes resulted in little, if any, increase in manufacturing expense, but daily savings of hundreds of dollars in packaging and shipping costs are now being enjoyed.

It has been found that for easier handling and to permit complete utilization of freight car space during shipment, it was best to lay water heaters on their sides immediately after packaging. A problem then arose, of providing adequate bracing which would prevent buckling of the relatively light gauge enameled steel casing which enclosed the galvanized tank.

The drain for the tank projected several inches downward from the underside of the tank, necessitating four-inch legs which could not withstand lateral shock during transportation while the package was on its side. Therefore, bracing against the legs was

ruled out. The same for bracing against the easily dented casing.

With the product as it was then being produced, it became necessary to use expensive form-fitting braces which completely encircled the water heater at the very top and bottom. Adequate protection was provided, but at a high cost.

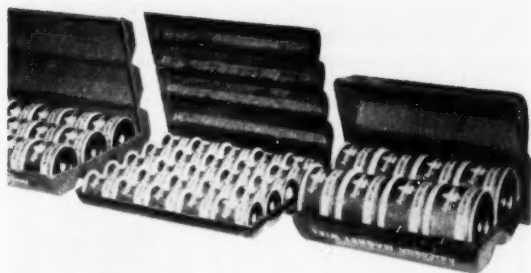
A simple solution was devised through cooperation of the package engineering department and the product engineering department of the company. The tank was redesigned with the drain projecting from the side of the tank instead of from the underside. With no projections underneath, it was then possible to replace the four-inch legs with stronger one-inch feet against which cleats could be placed. At the top of the unit, a permanent bracket was built-in. Now, in packaging, the three feet of the water heater fit between cleats which are part of the base of the container and the top is firmly bolted to the other end of the container by means of the new bracket. Regardless of the position of the package from then on, the product floats away from the sides. The expensive interior bracing which was formerly required has now been completely discarded. As an added bonus, packaging time has been reduced.

Waiting until a product is in full production before bringing together the ideas of the packaging engineer and the product design engineer can result in considerable waste.

From the product testing laboratory of a container manufacturer comes the following example:

A stove manufacturer, faced with a high damage rate on its products sent a range to the testing labora-

(Continued on page 146)



COOPERATIVE EFFORT between product designers and package designers resulted in these "built-for-each-other" spools and molded fibre containers. Spools no longer suffer damage due to "hopping" in transit.



STORAGE SPACE requirements for the new molded fibre containers are only $\frac{1}{3}$ what was required by the old ones. Also, the new cases weigh only $\frac{1}{3}$ as much and protect from dust and dampness during storage.

THE BIOGRAPHY OF A PACKAGE

Many factors should be carefully considered before you select a shipping container. Type of packaging operations, nature of the product, and method of shipping are only a few of the factors which will determine the final design of the container you use.

correct container . . .

backbone of the package

FOR ADDITIONAL INFORMATION . . .

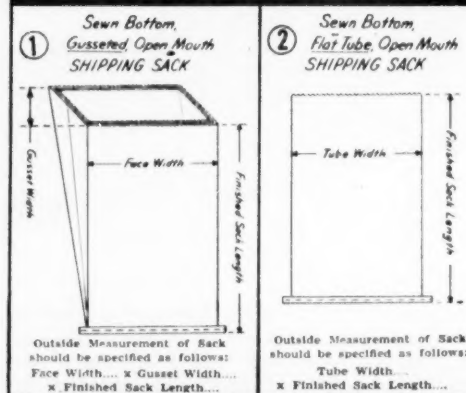
. . . you can see products discussed in this article in the exhibits listed below, at the 8th National Packaging & Material Handling Exposition.

Exhibitor	Booth No.
Allied Container Corp.	113B
American Box Co.	403
Atlas Plywood Corp.	101, 200
Auto Nailer Co.	115
Continental Can Co., Inc.	100
Cleveland Container Co.	114
Elberta Crate & Box Co.	410
Robert Gair Co., Inc.	116
General Box Co.	205
Hinde & Dauch	304A
National Metal Edge Box Co.	314
National Wooden Box Assoc.	311
Rathbone, Hair & Ridgeway Box Co.	312
Union Bag & Paper Corp.	701, 703
U. S. Plywood Corp.	111
United Can Co.	513
Universal Tube & Container Co.	113B
Wirebound Box Mfg. Assoc.	315

Of the many factors involved in your package's ability to perform adequately during its lifetime, the type of container you select is probably the most important. An answer to the question "What Container?" must be supplied before any truly intelligent planning of methods of cushioning, bracing, filling, closing, marking, dock handling and shipping can be accomplished.

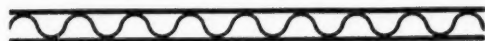
You wouldn't use slipshod methods in the purchase of raw materials for the products you manufacture . . . don't use them in buying packaging materials. For your raw materials, your engineers draw up and insist upon close adherence to exact specifications for every

WHEN SPECIFYING PAPER



Three Sizes of Corrugations

A-Flute (3/16" high)



B-Flute (1/8" high)



C-Flute (5/32" high)



CORRUGATED CONTAINERS can be used to ship bulky items like automatic washers. Component parts of such a container, including inner bracing are shown above. Proper flute is important to good product protection. Sketch at left illustrates: A-flute . . . 3/16" high with 36 flutes per ft.; B-flute . . . 1/8" high with 50 flutes per ft.; C-flute . . . 5/32" high, 42 flutes per ft.

to your plant, compensations in container design might result in faster, safer, and cheaper shipping.

Without doubt, a carefully selected container which has been planned as an integral part of all other factors in the packaging procedure, can open a smooth, fast-moving path directly from the production line to the consumer. But a container poorly selected can be a bottleneck to the entire packaging and shipping operations.

Often, it is advantageous to select a container which is standard in size and shape, and adapt it to any particular product through inner bracing and cushioning. In a great many instances, however, a particular product demands a specifically designed container,

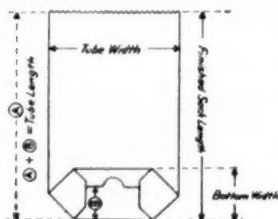
material you buy. The same should apply to the purchasing of containers (or any packaging material for that matter) which will be used in preparing your product for shipment.

Designing and Selecting a Container

Before a container can be designed, all the other factors which will contribute to the completion of the package must be considered. If your plant has an already installed packaging line, a container for a new product would have to be one which would fit in economically, and which would not slow down operations. Or, if only a certain type of transportation is available

SACKS, GIVE OUTSIDE DIMENSIONS... AS ILLUSTRATED HERE

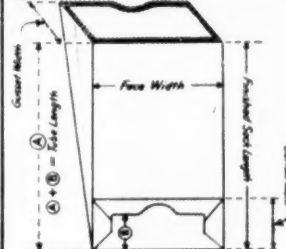
③ Pasted Satchel Bottom Style, Open Mouth SHIPPING SACK



Outside Measurement of Sack should be specified as follows:

Tube Width... x Finished Sack Length...
x Tube Length... x Bottom Width...

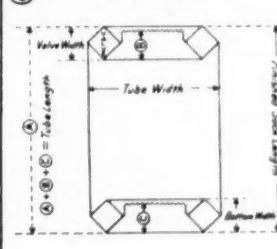
④ Automatic (S.O.S.) Style, Open Mouth SHIPPING SACK



Outside Measurement of Sack should be specified as follows:

Face Width... x Gusset Width... x Finished Sack Length... x Tube Length... x Bottom Width...

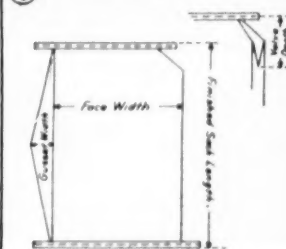
⑤ — Pasted Valve — SHIPPING SACK



Outside Measurement of Sack should be specified as follows:

Tube Width... x Tube Length... x Valve Width... x Finished Sack Length... x Bottom Width...

⑥ Sewn, Gusseted, Valve SHIPPING SACK



Outside Measurement of Sack should be specified as follows:

Face Width... x Gusset Width... x Finished Sack Length... x Valve Depth...

which although standard in general appearance may have several special features which make it more economical and better suited to the product it will carry.

Special designs might also be made necessary by requirements of carriers. For that reason, a close study and complete understanding of regulations like rules 6, 40, 41, 49 of Railway Freight Specifications, Postal Regulations, National Container Rulings, I.C.C. Specifications for explosives, etc., are imperative.

Bags

Products which do not require rigid support: powders, granular materials, many small parts, etc., can often be shipped successfully and economically in textile or paper bags. Important considerations are: handling and shipping methods to be expected; water absorptive qualities of the product to be shipped; degree of cleanliness required; dusting qualities, if any; weight of the product.

Textile bags are usually made of burlap or cotton in a variety of weights and widths.

Osnaburg and other unbleached cotton bags are designed primarily for rough handling. The prices of these types are generally lower than other types of

textile bags. Recommended wherever good resistance to puncturing, tearing or snagging is required.

For use where appearance is of primary importance, bleached cotton bags are often preferred. Such bags are excellent for re-use or home-sewing value and can be printed with washout inks.

Although textile bags ordinarily have a seam on one side, and the bottom, they are also constructed of tubular material when a strong, seamless type is required. This is generally true for shipment of products such as seed which sifts easily.

Paper shipping bags are available in two types; light duty sacks made of one or two plies of paper, and heavy duty sacks known as Multiwall. The latter are constructed of three or more plies of paper and are used largely for bulk shipments. Kraft paper plies are positioned during manufacture so that each sheet in the finished bag bears its full share of the burden. Capacities generally vary from 25 to 100 lb.

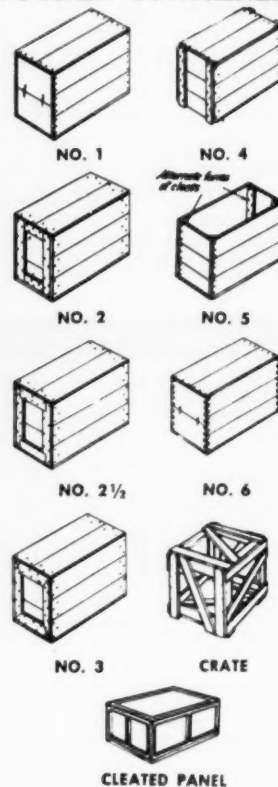
Five Multiwall Types

There are five major types of paper shipping sacks: sewn valve, pasted valve, sewn bottom open-mouth, pasted bottom open-mouth, and open corner.



COLLAPSIBLE TIGHT CORNER HINGED CRATE is assembled onto a stove at the end of production line. This type nailed-wooden container offers quick assembly since it is received in three units consisting of top panel, bottom panel and collapsed side walls, all unitized by flexible wire hinges. For assembly, only the top and bottom panels are nailed.

BASIC TYPES OF NAILED WOODEN CONTAINERS



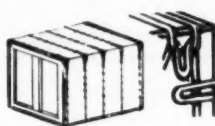
BASIC TYPES OF WIREBOUND CONTAINERS



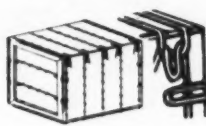
STYLE 1



STYLE 2



STYLE 2A



STYLE 3



CRATE

Sewn or pasted valve bags are factory pre-closed at top and bottom, with exception of a valve opening at the upper corner. They are filled on valve bag packing machines installed by the customer. Internal pressure of the product within the filled bag automatically closes the valve, effecting a tight closure.

The standard valve bag usually affords protection needed for safe shipment of products like cement, lime and plaster. Fertilizers, manufactured feeds, and similar products present a siftage problem, however, and for them, an LC sleeve (a specially formed sheet of kraft paper positioned on the inside of the corner opening) is recommended. Like the standard valve the LC closes automatically by internal pressure exerted by the product at the time of filling. Tuck-in sleeves are also used for protection from siftage and to eliminate moisture penetration. A tuck-in sleeve is formed of kraft paper and projects through the valve opening to the outside of the bag. After removal from the filling machine, the sleeve is folded back and into the corner opening to effect complete closure.

Sewn or pasted open-mouth sacks are factory closed at the bottom only. The top is left open to be closed after filling at the shipper's plant. The initial cost of open-mouth bags plus the cost of closing materials is generally somewhat less than the cost of comparable valve bags. This differential, however, may be offset in whole or in part by the saving of labor afforded by the valve bag packing system.

Corrugated Containers

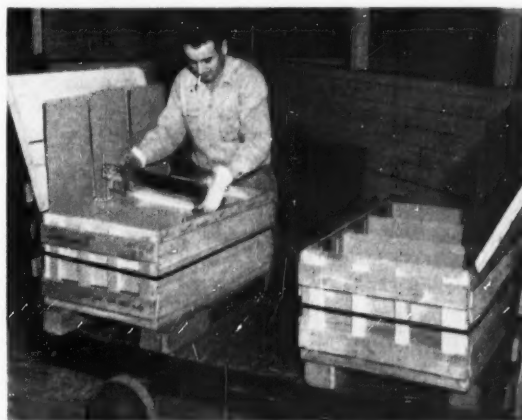
The cold-cash cost of a shipping container fabricated from corrugated fiberboard is by no means the only factor to be considered when selecting a box for the packaging of your product. The nature of the product to be packaged and special protective considerations are as important in primary planning.

A corrugated container seems like a fairly simple device. Consider, however, some of the variables that are possible in its construction. There are more than twenty generally used styles of box; three types of corrugations, A, B, and C, which may run horizontal or vertical; the box may be fabricated with either starch or silicate adhesive or with both; at least seven corrugating mediums in a wide range of weights with three principally used varieties of linerboard in a still wider range of weights are generally used; the manufacturer's joint may be stitched, glued or taped. Each of these elements, plus many more, must be carefully evaluated and the correct ones selected.

Certain products call for containers made of special board: silver, brass or copper items call for a sulphur-



WIREBOUND BOX provides a speedy method of packaging odd shaped products like this hoist. Hoist is shipped almost completely assembled, with fittings placed inside the box. Paper repels dirt and moisture.



FOR HIGH CONCENTRATION OF WEIGHT, like sheet glass, specially engineered containers like these wirebounds insure safe shipment. Corrugated dividers prevent shifting. Each box holds almost 1/2 ton of glass.

free board; glass and porcelain call for board with low pH (acid alkali characteristics); other commodities require treatments such as wax for moisture resistance, or other coatings for grease resistance. Release coatings of various kinds to keep contents from sticking to the side walls of the container are available. Certain plastic materials or raw-rubber products would come in this category.

The properties of the corrugating medium contribute substantially to the properties of the finished board in a corrugated container. Seven types of coarse paperboard generally used as corrugating mediums are: strawboard, bogus, semi-chemical, Fourdrinier kraft, cylinder kraft, chip and chestnut, each with characteristics of value to specific applications.

Flute size is closely related to cushioning ability and resistance of the board (from which a box is constructed) to crushing compressive forces. The flutes of a corrugated wall are specified by size A, B or C. A-flute is approximately 3/16" high with 36 flutes or corrugations per linear foot. B-flute is 1/8 in. high with 50 flutes per foot. C-flute is 5/32 in. high with 42 flutes per foot. Other things being equal, A-flute will produce board with the least flat crush resistance and B-flute the most. A can box, for instance, requires little or no top load, but ample side and end load protection, making a B-flute type of board advisable. Where light weight contents are involved, calling for maximum protection against top load, A-flute corrugations are usually recommended. C-flute, of course, falls midway between A and B in performance.

Most corrugated containers in use are of the slotted type and of one-piece construction. Shipped flat to the user, they can be stored easily in a comparatively small space until needed. Proper closure in using slotted containers is of utmost importance, placing much responsibility for successful shipment on the shipper.

In general, corrugated and solid fiberboard boxes are accepted for freight and express shipment when the gross weight of the box and contents does not exceed 160 lb., and the inside dimensions (length, width and depth added) do not exceed 120 united inches. These limitations are for one-piece boxes only, and can be exceeded in special instances which must be ruled on individually by carriers. In general, two-piece corrugated containers are permitted to carry heavier loads.

Excellent guides to selection of corrugated fiberboard boxes are: Rule 41 of General Freight (railroad) Regulations, and Rule 13, Railway Express Specifications and Regulations. It must be borne in mind, however, that these rules are minimum specifications, and, because of their nature some products will often require boxes made stronger than the specifications might indicate.

Your best bet is to work closely with a box supplier who has a thorough knowledge of container board, con-

tainer construction, carrier regulations. This, combined with the studies you have made of your own product can result in a container which gives complete protection at low cost and which fits into your production set-up, as well as your shipping operations.

If You Use Drums or Barrels

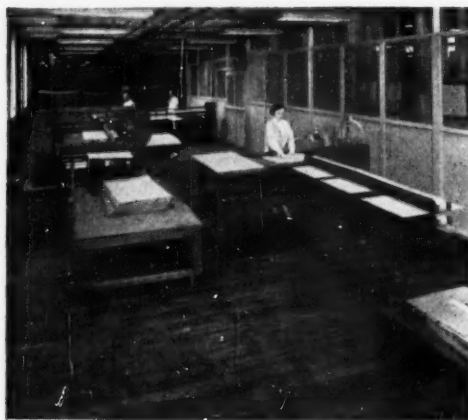
Steel drums are made in two basic types to suit them to a variety of products: Light Drums are those

IF YOU MAKE YOUR

... you can use
automatic box makers ...

Where relatively small quantities of many different sizes of corrugated containers are used, automatic box making equipment can help to make operations more efficient. With "quick-change" machinery now available, it is possible to get the exact size box required, exactly when it is wanted. Since you need only store sheet stock, in relatively few sizes, the problem of how to store seldom used sizes of containers is eliminated.

Where long runs of standard size boxes are used, however, it is still best to purchase standard, pre-made boxes.



BOX MAKING DEPARTMENT illustrates an excellent layout of facilities for in-plant corrugated box making. In background is supply of box board and cutter which supplies sizes needed for any container. At left foreground is box maker and at right foreground is machine which seals the "manufacturer's seam" of the box.

made of steel lighter than 20 gauge and of 100 capacity, and of open head construction. Heavy Drums are made of 20 gauge or heavier steel and are other than open head style. The latter are called tight head drums and are usually equipped with two screw thread openings.

Open head drums are primarily used for the shipment of heavy liquids, shortenings, greases and other products hard to pour or pump from tight head drums. Lime dusts, granular materials and finished metal products such as instruments and aircraft parts are some of the materials now being shipped successfully in steel drums.

Fiber drums are useful in the shipment of many bulk materials. Note that to qualify as a shipping container,

a fiber drum must meet the minimum strength requirements laid down in freight regulations. Cylindrical fiber cans for retail packaging are relatively much lighter than drums for shipping. For example, a one-gallon fiber drum would be at least two or three times stronger and heavier than a one-gallon fiber can.

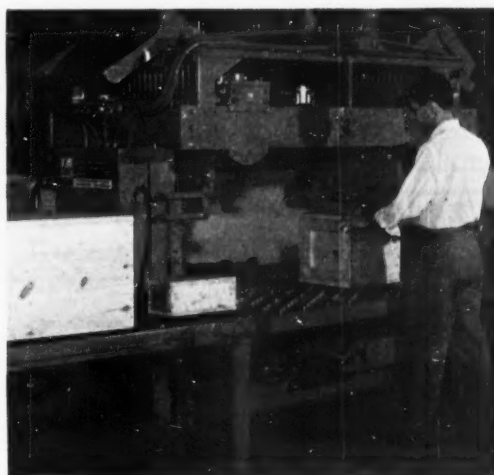
For shipment of hygroscopic or deliquescent products, special bag liners are generally used, or a barrier material may be built into the drum during manufacture. For wet products without an excessive amount of free liquid, drum interiors may be impregnated with hot paraffin spray or they may be resin treated.

(Continued on page 142)

OWN CONTAINERS



WOODEN TABLE was built onto this nailing machine to adapt it to nailing of large crate sides. At the push of a foot pedal, the machine makes a nail from a coil of wire, drives it, and countersinks it to exactly the right depth, at speed of 3 per second.



ADJUSTABLE BOX LIDDER automatically end nails lids on boxes of mixed sizes. It adjusts its nailing mechanism to any size box, from a minimum of six inches deep, six inches wide and 15 inches long, to 18 inches deep, 24 inches wide and 50 inches long.

. . . or you can use nailing machines.

Nailing machines are flexible, are adjusted quickly and simply enough to fit economically into jobs thought impossible in the past. Production need not be in the thousands to make this type of equipment useful in your plant. Whenever nails are used, nailing machines which drive any type of nail or which make and drive their own nails can help to achieve greater speed, greater efficiency and better nailing jobs.

If only one size box is to be made for long production runs, an automatic or semi-automatic machine will offer the most in speed and economy. On the other hand, if great production is not of topmost

importance, but initial cost is, then a general purpose machine might be called for. Such would usually be the case when several types and sizes of boxes are required, and when change-over from one to another is frequent.

Basic types of nailing machines are: Edge nailers—permit work to pass across the front of the machine from side to side, and are limited in use to straight line or single staggered line nail drive; center line nailers—generally are open type and permit work to pass from front to back for flexibility pattern; box framers will drive all nails in one surface of a box at one stroke.

FOR ADDITIONAL INFORMATION . . .

. . . you can see products discussed in this article in the exhibits listed below at the 8th National Industrial Packaging and Material Handling Exposition.

Exhibitor Booth No.

Cushioning

American Excelsior Corp.	206A
Armour & Co., Curled Hair Dept.	309
Blockson & Co.	301
Celotex Corp.	309A
The Gilman Bros. Co.	523
Greenwood Packaging Supply Co.	212-214
Jiffy Mfg. Co.	313
Kimberly-Clark Corp.	204
Queen City Tulatex Corp.	519
Wood Conversion Co.	321

Barriers, Wraps, Dessicants, Plastic Coatings

Angier Sales Corp.	120-122
Aerol Products Co., Inc.	319
Davison Chemical Corp.	504
Doughboy Industries, Inc. (sealers)	211
Eastman Chemical Products, Inc.	302
Filtrol Corp.	307
Fox Paper Co.	109
R. M. Hollingshead Corp.	401
Non-Rust Chemical Corp.	404
Reynolds Metals Co.	203
Sherman Paper Products Corp.	308

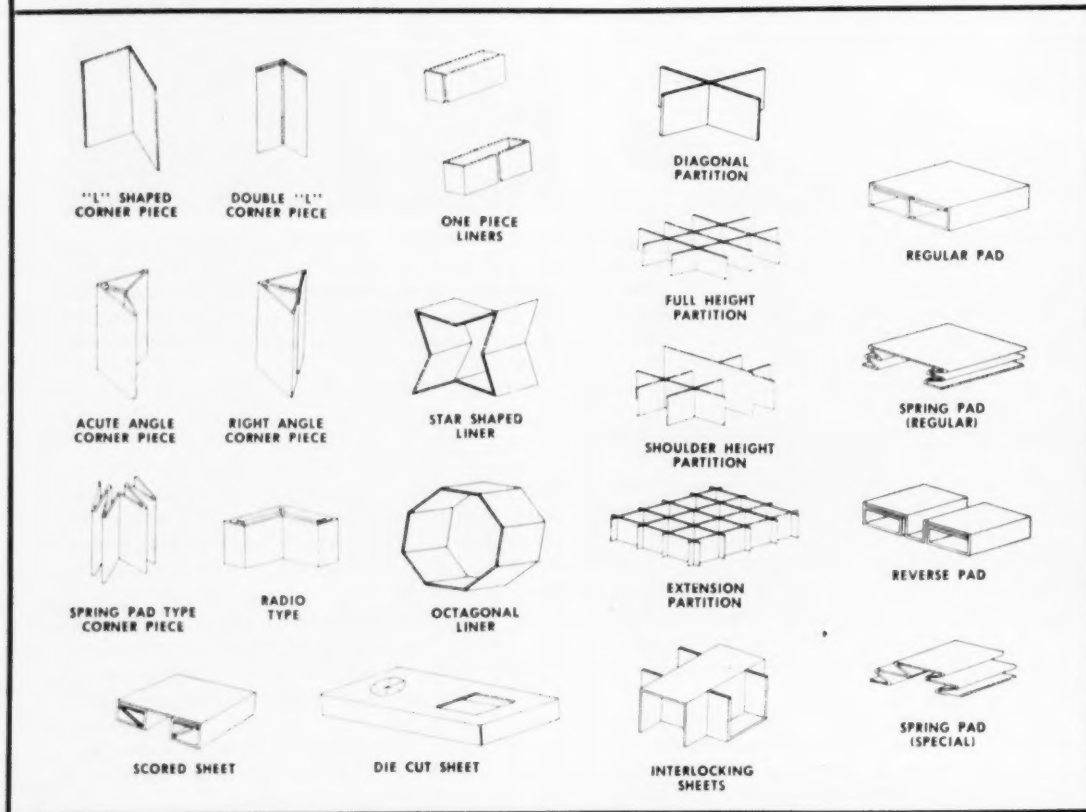
Testing Equipment

American Instrument Co., Inc.	103
The Impacto-Graph Corp.	305



A wrong guess in the design of the interior parts of a package can result in costly product damage, a waste of packaging material, and high shipping costs. The solution: don't guess.

21 STANDARD TYPES OF BRACING FOR YOUR PACKAGE



engineering the interior of the package

GUESSWORK inside the package can result in the complete undoing of all the intelligent planning which has been devoted to the design and manufacture and in the selection of the correct shipping container for any product.

Inadequate cushioning or bracing may offer no more protection than none at all. On the other hand, too much cushioning, can be extremely wasteful. A wrong guess in the packaging of finely finished metal objects may result in serious loss as a result of corrosion.

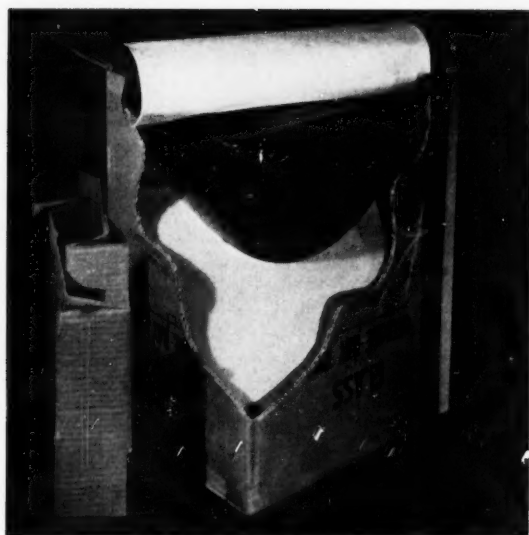
Only through careful planning of cushioning and bracing and of any necessary inner wrappings and desiccants can you be certain that the product will be removed from the package at its destination in the same perfect condition in which you shipped it.

Cushioning

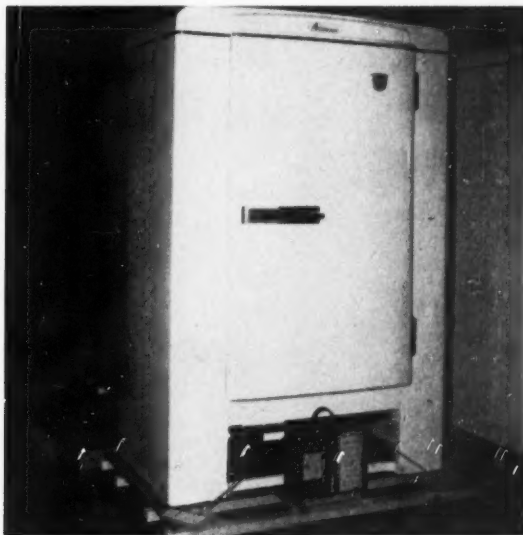
In deciding how much of which type of cushioning to use, one of the first considerations should be the nature of the packaged product itself. Obviously, a heavy, strong item would not require the same amount or the same type of cushioning that a light weight fragile item would need.

To help in the determination of the exact characteristics of any item to be shipped, numerous testing devices have been developed. Incline impact testers (used in conjunction with impact recorders), vibration testers, and drop testers all provide valuable information for the packaging engineer. Used correctly, they can accurately fortell where and when shock will start to take a toll on any product.

Another early consideration in the planning of in-



CREPED WADDING, die-cut corrugated sheets, and scored corrugated sheets all contribute to the inner packing of this package. Unit being shipped is odd-shaped, fragile cathode-ray tube.



IMPACT RECORDER firmly anchored to base of container in which upright freezer will ride gives accurate record of shocks and bumps experienced from packaging to destination. Gives time and magnitude of shock.

terior cushioning should be "how much rough handling will the package receive between the packaging room and the final destination." This is generally determined through use of an impact recording device packed in with a product, to provide a test package. Such a test package when shipped under conditions expected for all packages, provides the packaging engineer with a graphic description of the time when a package was in motion, when it was standing still (as on a siding), when the package was turned on end, or knocked down, and when all shocks occurred.

With the information secured from tests of the product and shipping conditions to be expected, one is ready to proceed to the actual selection and design of cushioning. Cushioning material which can be used in the protection of a product for shipment include rubberized hair, cellulose wadding, shredded paper, excelsior, sponge rubber, wood felt, hair felt and corrugated paper.

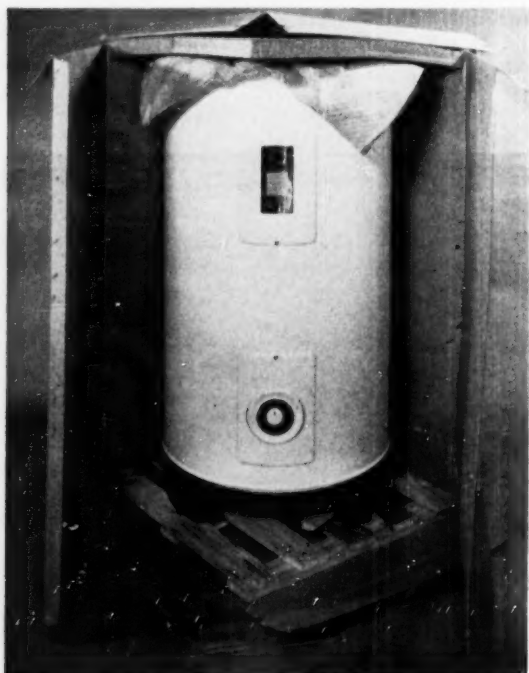
Four points generally considered in the selection

procedure are: 1. load-deflection characteristics or spring rate; 2. ability to retain height and spring rate after repeated shocks and after exposure to changes in temperature and moisture; 3. ease of application; 4. freedom from abrasiveness. In the case of foodstuffs and perishables, a fifth consideration might be the likelihood of the cushioning material to impart a foreign taste or to otherwise affect the product's condition.

In general, there are two approaches to the calculation of effective cushioning. One is a mathematical calculation of dynamic loads and corresponding deflection and the other considers stress-compression versus energy compression.

G-Factor in Cushioning

In either approach, it is necessary to know the G-factor of the article to be packaged. That is, simply, the resistance of the article to mechanical abuse in terms of how great a deceleration of motion it will stand. The G-factor represents a convenient way for product and package designers to express the overall



WOODEN BASE used in conjunction with corrugated container provides ideal place for cleats which hold legs of appliance in place. Corrugated pad and creped wadding prevent top from shifting while in transit.



CORRUGATED POLYETHYLENE SHEET with creped kraft backing is wrapped around unit with sharp edges to protect against moisture and to cushion. Dipecoat seal provides additional moistureproofness in package.

strength of the product in calculating the protection required.

With a package in free fall, the product inside experiences the same pressures during deceleration as the cushion which is resisting the downward pressure of the descending product. These pressures start at zero at the time of contact, increase to a maximum when the product is stopped, and return to zero as the compressed cushioning returns the product to its original position.

To express load in gravitational units or g's, divide the peak load by the product's weight. Divide the average load by weight for average acceleration experienced during the period of shock. The cushioning G-factor, then, is the peak acceleration (divided by the earth's acceleration) or the peak load (divided by the product weight) which the product or its weakest component can sustain without damage.

(Continued on page 158)



FORMULAS FOR USING DESICCANT UNITS

(from MIL-P-116 A)

Formula I—To find units of desiccant for use within barriers other than rigid metal containers . . .

$$U = 1.6A + 10D$$

Formula II—To find units of desiccant for use within sealed, rigid containers . . .

$$U = KV + 10D$$

Where U = number of units of desiccant to be used.

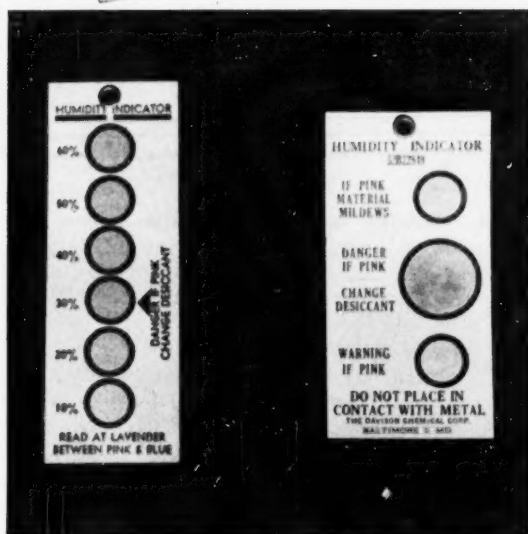
A = area of barrier in sq. ft.

D = lb. of dunnage within the barrier

K = 0.0007 when volume is given in cu. in., or . . .

K = 1.2 when volume is given in cu. ft.

V = volume of container in cubic in. or cu. ft.



HUMIDITY INDICATORS tell if package is doing job. Top—"Bulls-eye" indicator is installed into side of package, and provides outside indication. Two types of humidity indicator cards are shown in bottom photo.



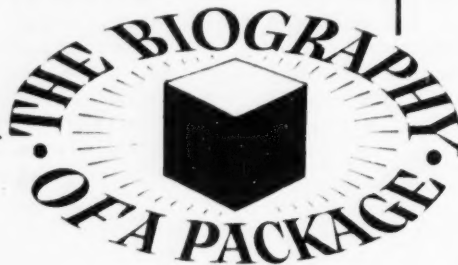
RUBBERIZED HAIR has been molded in shapes to fit irregular shape of item being packaged in this drum. Cushioning is made up of bottom, two side pieces and top. Desiccant is added before cover is placed on.

FOR ADDITIONAL INFORMATION . . .

. . . you can see products discussed in this article in the exhibits listed below at the 8th National Industrial Packaging and Material Handling Exposition.

<i>Exhibitor</i>	<i>Booth No.</i>
Amsco Packaging Machinery Co.	201
Miller Wrapper & Sealing Machine Co.	201
Pack-Rite Machines	300
Post Machinery Co.	210
Simplex Packaging Machinery, Inc., Food Machinery & Chemical Corp.	201

by **Kaye Holstebro**
Chief Engineer
Standard-Knapp Div.
Emhart Mfg. Co.



Whatever the package holds . . . liquid, powder, granular material, pastes, large or small items . . . it is possible to complete it faster and often better through the use of some type of packaging machinery.

completing the package with
automatic & semi-automatic . . .

packaging machinery

ALMOST any type package can be accommodated by packaging machines. At the present time, automatic and semi-automatic equipment is available for use with glass containers, tin containers, paper containers (bags, cartons, cases, etc.) and flexible packages using plastic films. To a lesser extent, machines are also available to package and handle wooden cases.

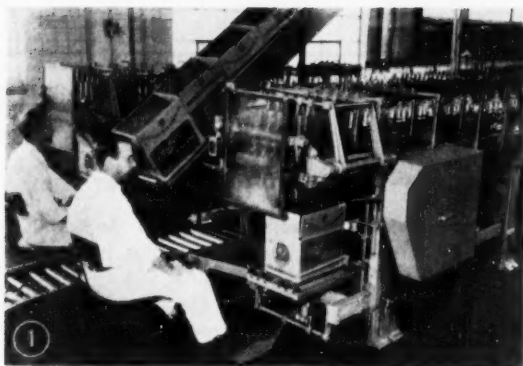
Operational and control devices on packaging machines can be broken down roughly into mechanical, air, hydraulic and electrical (the last category taking into consideration electronics, electric eyes and solenoids).

Packaging equipment available includes: loaders; unloaders; unscramblers; rinsers; soakers; soaker feed tables; cappers; labelers; palletizers; depalletizers; can, bottle, carton and bag packers; dry and

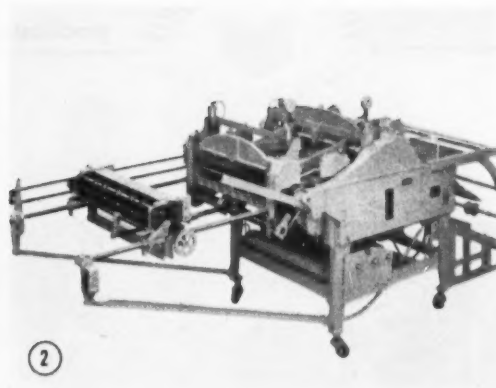
liquid volumetric and weighing fillers; carton and case make-up units; bundling machines; overwrap machines; banding, gluing and sealing equipment; and case markers and printers. Machinery manufacturers have standard models which have been designed to cover most of the packaging problems in the industry. It is often necessary, however, to modify standard machines to solve special problems. Occasionally where a problem is completely new, entirely new units may have to be designed.

Selection of equipment for use in packaging products involves many considerations. The packaging engineer must be influenced by such factors as labor costs, material costs, building costs, space allocation, package design and competition.

As costs have gone up, they have been accompanied by an increasing importance in higher speeds and

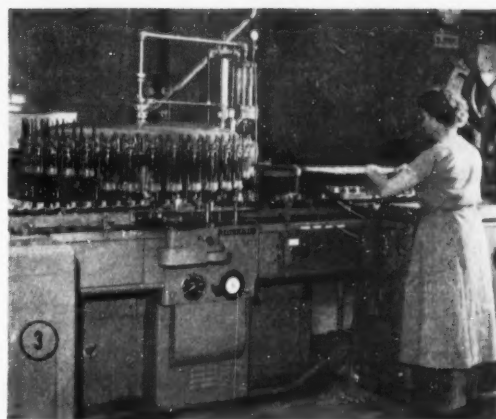


1. **BOTTLE PACKER** divides production into four balanced lanes. Cases can be handled by an operator or by a semi-automatic feeding unit.



2. **BARRIER BAG MAKING MACHINE** is used to produce bags for packaging military supplies of all types.

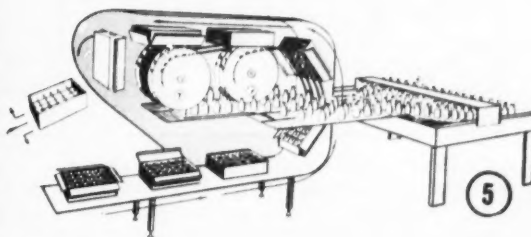
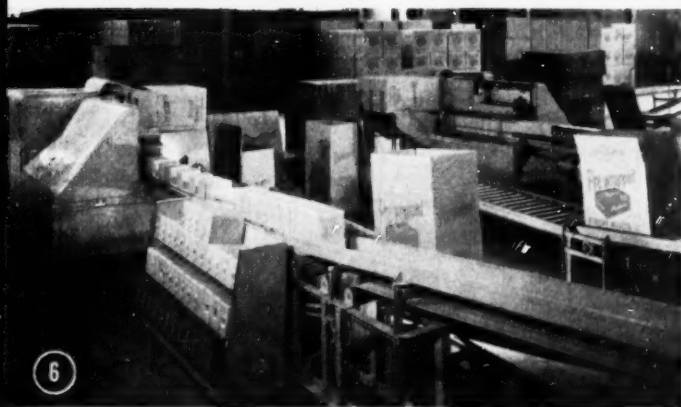
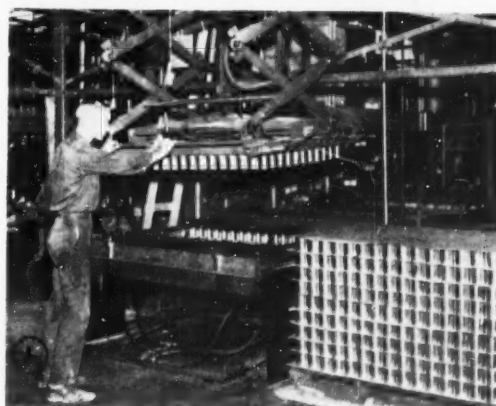
3. **VACUUM FILLING MACHINE** has template feed. Double stems suck out air and fill bottles simultaneously.

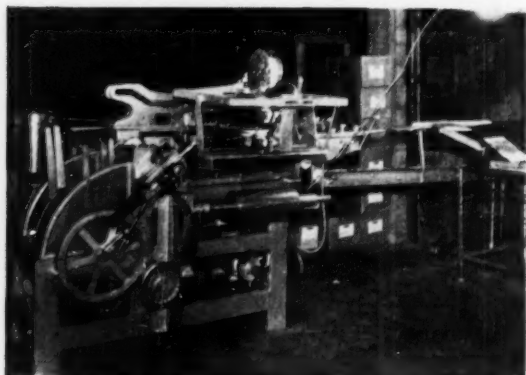


4. **PALLETIZER** collects cans from processing line and arranges them in load pattern determined by size of can and size of pallet. Fork truck moves filled pallet.

5. **UNCASER, CLEANER AND WASHER LOAD-ER** carries case holding empties into machine where they are inverted and bottles are removed by transfer wheels. Case is righted and bottles are conveyed to washer loader.

6. **END-LOADING SHIPPING CASES** can be filled with great speed through use of this semi-automatic case loader.





WRAPPING MACHINE is adjustable for wrapping a wide range of shapes and sizes. This unit is rust-proofed for protection under damp meat-packaging conditions. It is fully automatic.

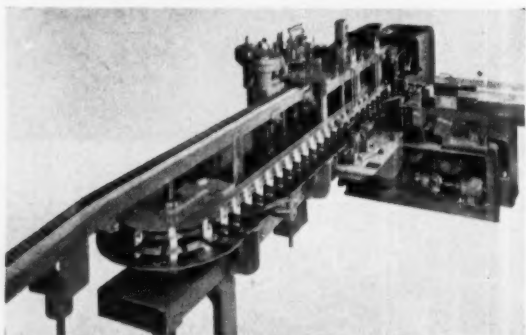
greater flexibility (adjustability) of packaging machinery. Today, such equipment must perform more operations in less time and require less operator attention than ever before. A machine must be able to use material which is the most economical and designed so that at high speeds there will be minimum of material spoilage.

With building costs at a record high, space in plants is at a premium. Often, this fact results in a lack of space for a given operation and contributes to demands for higher speeds and adjustability.

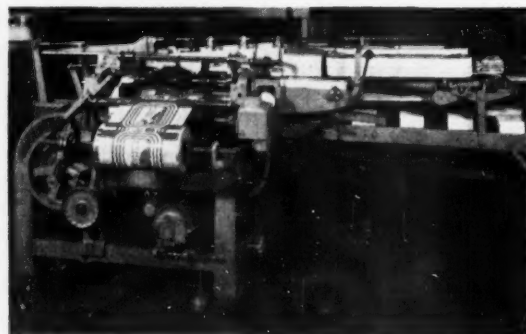
Of vital importance, however, is that the quality of the package must never be subordinated to any of the above factors. Above all, the basic job of package machinery is to produce a quality pack combining sales appeal and economy.

Package design, material costs and competition are all closely related problems. Competition may force

(Continued on page 167)

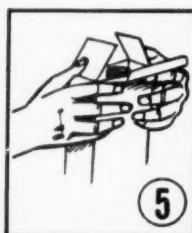
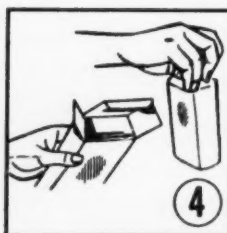


SEMI-AUTOMATIC CARTONER requires only that operator grasp bottles and insert them in carton as it goes by. Compare those two simple operations with the five required for manual cartoning. (below)



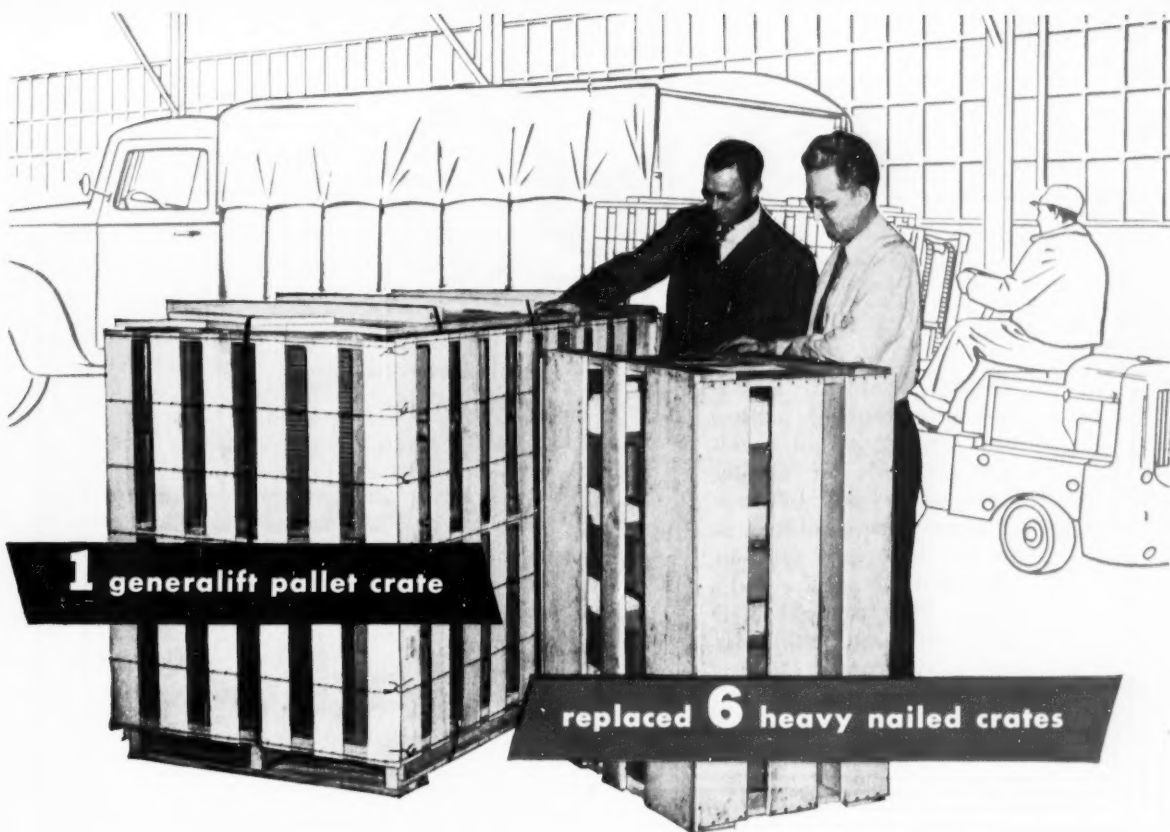
ELECTRIC EYE REGISTER insures accurate register of printed designs on this wrapping machine.

5 STEPS TOO MANY . . .



LOADING CARTONS BY HAND involves five time-consuming operations: 1. Operator must reach for and open the carton. 2. The bottom side flaps must be closed, and the tuck flap on the bottom must be inserted. 3. While holding carton in one hand, operator

must reach for the bottle. 4. Bottle must be inserted into the carton. 5. Top side flaps are closed, and top tuck flap inserted. Average speed of package completions by this method is 7 per min. By the machine (above left) that speed can be as high as 50 per min.



cut packaging costs 50%

reduced shipping costs 25%



Find out how other manufacturers are cutting packaging costs. Write for your free copy of "The General Box."

McCord Corporation, Plymouth, Indiana, solved both a packaging and a materials handling problem with the Generallift Pallet Crate shown above. Conferences with General Packaging and Sales Engineers produced a crate which held 24 radiators, packed easily, and could be handled by fork-lift from the shipping room all the way to assembly lines. It formerly took 24 heavy nailed crates and from 24 to 30 hours of labor to ready 96 radiators for shipment. Packing the same number in Generallift Pallet Crates takes only 4 hours.

This is only one example of the many packaging problems solved every day—at a saving—in General Box Company's two fine Industrial Packaging Laboratories. General Box packaging experts stand ready to help *you* cut packaging costs, too. Write for complete details.

General Box COMPANY

1857 Miner Street
Des Plaines, Ill.

Factories: Cincinnati; Des Moines, N.J.; Detroit, East St. Louis, Kansas City, Louisville, Milwaukee; Prescott, Ark.; Sheboygan; Winchendon, Mass.; General Box Company of Mississippi, Meridian, Miss.; Continental Box Company, Inc., Houston

ENGINEERED SHIPPING CONTAINERS FOR EVERY SHIPPING NEED

Generalift Pallet Boxes
Wirebound Crates and Boxes

Cleated Corrugated and Watkins-Type Boxes
Corrugated Fiber Boxes

All-Bound Boxes
Stitched Panel Crates

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THE BIOGRAPHY OF A PACKAGE

Taping, strapping, stitching and stapling, gluing and sewing are all excellent methods for closing different types of containers. The problem is to use the right one, in the right way, at the right time. This article will help you to get the most out of whatever closure method you use.

equipment and
material for . . .

closing the package



HIGH SPEED SEALING of corrugated cases is made possible by the machine shown in background of photo (left). As cans of coffee roll down chute from packing line, operator places open bottom of case at discharge of packaging machine which inserts 24 cans into container. Then, he merely tilts the filled case back onto the roller conveyor between himself and the case packer. Filled containers are carried to sealing machine where tops and bottoms are glued simultaneously. Glue is applied to flaps in a thin, even film by driven glue rolls, then flaps are closed and compressed for correct length of time for tight, permanent seal.

WHAT is the shipability rating of your package? Will it remain securely closed throughout the rough treatment it can be expected to receive during handling and shipment? How well can it withstand top-to-bottom pressures, or end-to-end pressures, or drops, or constant vibrations?

If the shipability rating of your product's package is low, and it does tend to open when the going gets rough, you had better check into your closure methods. The penalty for failure to close a package correctly is not only the loss of valuable merchandise which might fall out, be damaged, or be stolen. The good will of a customer is dealt a death blow when products are received in poor condition because a package opened prematurely. The loss of even a single customer is a consequence much too serious to permit the use of cheap, inadequate or incorrect methods of closure.

Your insurance that all packages you send out will arrive safely lies in the correct use of a good closure material. Taping, strapping, stitching and stapling, gluing, and sewing are all excellent methods for closing different types of containers . . . if they are used properly. If used improperly, they cannot begin to do as good a job for you as their manufacturers intended.

Selecting and Using Tapes

In general, the types of tapes available for package sealing include the following: water-activated gummed paper tape; reinforced tapes; and pressure sensitive tapes.

Water-activated gummed paper tape, when properly moistened and applied, provides a lasting seal in an economical and easy operation. There are many weights, sizes and grades of tape, each for a particular application. To be sure that you have the right tape for the job, it is a good idea to check with your sup-

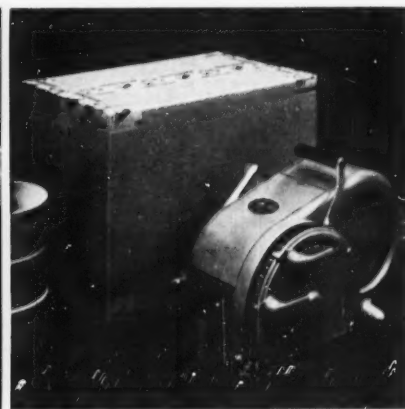
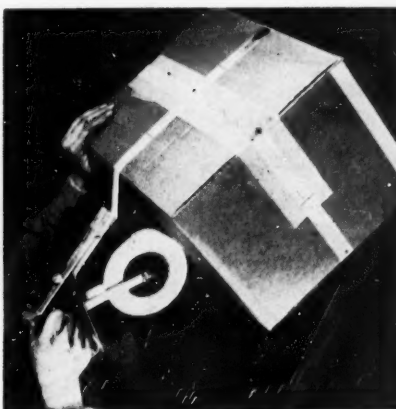
FOR ADDITIONAL INFORMATION . . .

. . . you can see products discussed in this article in the exhibits listed below, at the 8th National Packaging and Material Handling Exposition.

<i>Exhibitor</i>	<i>Booth No.</i>
Acme Steel Co.	400, 402
Angier Sales Corp.	120, 122
Better Packages, Inc.	507B
Hampton Mfg. Co., Industrial Tape Division	515
International Staple & Machine Co.	202
Marsh Stencil Machine Co.	500
Powers Wire Products Co.	304B
Seamless Rubber Co.	503
Signode Steel Strapping Co.	306
The Stanley Works, Steel Strapping Div.	213
U. S. Steel Corp. Gerrard Steel Strapping Div.	207, 209

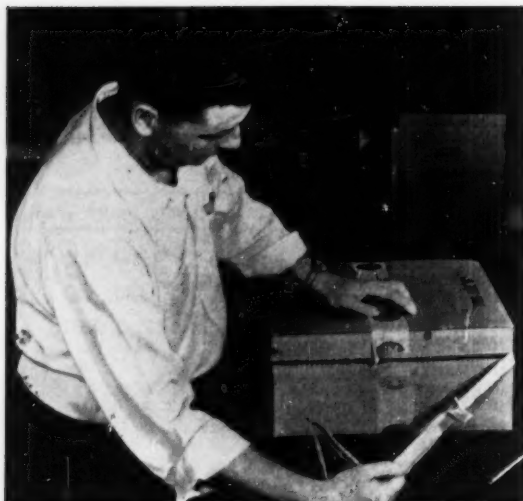
plier, and to study the regulations of the carriers by which you ship.

A common example of incorrect selection and use of tape is in shipping rooms where two strips of overlapping 60 lb. tape are used to seal the center seam of a corrugated box. The second strip is usually permitted to overlap the first slightly, with the rest of the tape sticking just to the carton surface. This second strip has little value in strengthening the seam. It is wasted tape, and the effort and time spent in applying it also is wasted. It would be better to apply the second

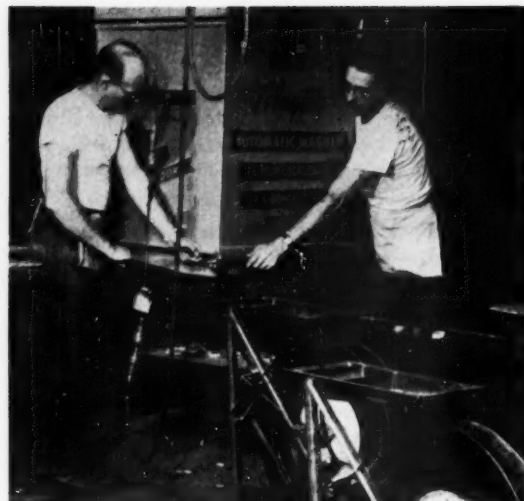


PRESSURE SENSITIVE TAPE DISPENSER (left) is of pull and tear type. Operator pulls out tape, checking length on indicator, and tears off proper length. **HAND DISPENSER (center)** is used with pressure sensitive reinforced tape. Marks on tape indicate length

of tape which has been dispensed. **AUTOMATIC DISPENSER (right)** measures and cuts off predetermined lengths of water-activated gummed paper tape. Printed tape serves a dual purpose of closing and marking package with sales message or trade mark.



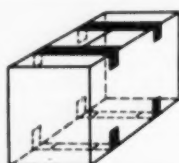
TEAR STRIP TAPE makes securely sealed corrugated box easy to open. Tear strip is adhered to inside of the container with only a small tab on outside. To open, tab is pulled outward, zipped around carton's sides and the lid is ready to lift off.



STEEL STRAPPING insures permanent closure of this corrugated container used to ship washing machines. Flaps at ends of container interlock with flaps on end pieces. When the strapping is applied, a dirt and dust proof closure which can't open prematurely results.

A FEW RECOMMENDED TAPE SEALING METHODS

REINFORCED TAPES



REGULAR SLOTTED
CARTON



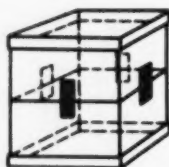
3 PIECE
CARTON



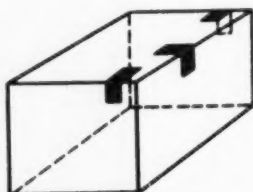
FULL TELESCOPE



HALF TELESCOPE



BELSINGER

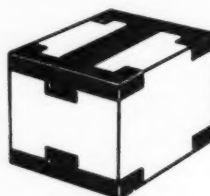


FULL OVERLAP

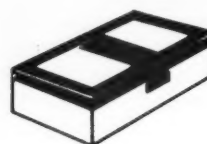


5 FACE PANEL STITCHED ENDS

GUMMED SEALING TAPES



REGULAR SLOTTED
CARTON



TELESCOPE
CARTON



SOFT WRAPS



BAGS



FOLDING BOX

strip directly over the first to at least provide double reinforcement.










A better solution, however, would be the use of a single strip of heavier, stronger tape. The result would be cheaper, stronger and would require only half as much work.

A generally acceptable rule-of-thumb for the selection of the correct basis weight and width of paper tape is as follows:

Center slotted type boxes which will carry less than 50 lb. should be sealed with 60 lb. tape, no less than two inches wide, preferably three inches wide. When over 50 lb., these containers should use 90 lb. tapes, three or four inches wide. Telescope cartons, when used for light weight merchandise, are sealed with 60 lb. tape in widths no less than two inches. For weights in excess of 50 lb., three-inch or four-inch 90 lb. tape should be used. Overlapping flap boxes should be sealed with 60 lb. tapes for lightweights and 90 lb. tapes for heavyweights. Tape should be three or four inches wide here too.












(More on next page)

DRIVEN AND CLINCHED STAPLES

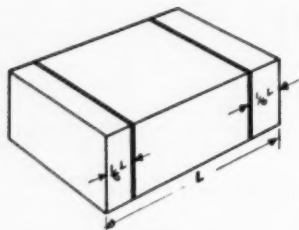
Staple	Trouble	Cause	Remedy
	Perfect Stitch (.175 to 1/8" Crown Width)		
	Perfect Stitch (Crown Widths greater than 1/8")		
	Loose clinch	Wrong setting of Stitches adjustment for thickness of work, and clinchers set too low	Check setting of Stitches for thickness of work being stitched, and raise clinchers.
	Legs spread	Worn wire cutters	Check movable and stationary cutters, sharpen or replace cutters.
		Former grooves worn	Check formers; replace if grooves are worn.
		Wire straightener not properly adjusted	Check setting of wire straightener.
		Thickness of work beyond capacity of machine	Check thickness capacity of Stitches
	Staple legs contracted	Worn wire cutters	Check movable and stationary cutters, sharpen or replace.
		Wire straightener not properly adjusted	Check setting of wire straightener.
	Crown buckled, tearing work	Wrong setting of machine adjustment for thickness of work	Check setting of Stitches for thickness of work being stitched.
	Only one leg clinched in	Clincher not in alignment with driver	Align clincher and driver.
	Short legs	Insufficient wire draw	Increase amount of wire draw.
	Legs cross	Wire draw too great	Decrease amount of wire draw.
	Uneven clinching	Clincher not level and parallel with formers	Adjust clincher setting.

TROUBLE SHOOTING CHART

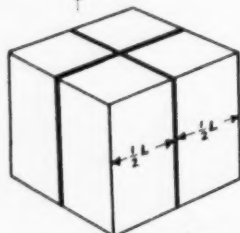
FORMED STAPLES

Staple	Trouble	Cause	Remedy
	Perfect staple		
	Right leg short	Wire spool dragging	Adjust wire spool tension.
		Wire slipping in wire feed gears	Check tension setting of wire feed gears.
		Upper and/or lower wire tube clogged or worn	Check wire feed tubes.
		Cutter block not properly positioned with relation to gripper	Make adjustments.
		Improper wire feed due to over lubricated or worn wire feed clutch	Check operation of wire feed clutch.
		Wire slipping in gripper due to normal wear of gripper bar clamp piece or insufficient tension in clamp piece spring	Check gripper bar clamp piece and spring.
	Left leg short	Cutter block not properly positioned with relation to gripper	Adjust length of left leg.
		Wire slipping in gripper due to normal wear of gripper bar clamp piece or insufficient tension in clamp piece spring	Check gripper bar clamp piece and spring.
	Staple corner buckled	Chipped or broken driver	Check driver ends for signs of damage, reverse or replace driver.
	Either or both legs buckled	Wrong size wire being used for work being stitched	Check wire size for work being stitched.
		Dull wire cutters	Check movable and stationary cutters; sharpen or replace cutters.
		Worn supporter, or supporter retracts too easily due to insufficient spring tension	Check for worn supporter and broken or weak supporter spring.
	Bent crown	Wrong size wire being used for work being stitched	Check wire size for work being stitched.
		Supporter retracts too easily	Check for weak supporter spring.
	Left leg missing	Wrong setting of Stitches adjustment for thickness of work being stitched	Check Stitches adjustment for thickness of work being stitched.
		Wire slipping in gripper due to normal wear of gripper bar clamp piece or clamp piece spring	Check gripper bar clamp piece and clamp piece spring.
	Right leg missing	Gripper out of alignment with formers	Check to see that formers and gripper are in proper alignment.
		Wire slipping in wire feed gears	Check tension setting of wire feed gears, check for worn gears.
	Staple comes out in pieces	Refer to Causes for "Left leg missing"	Refer to Remedies for "Left leg missing"
		Gripper not operating properly due to broken or weak gripper bar holding springs	Check for broken or weak gripper bar springs.
		Supporter edges worn sharp	Check for worn supporter.
	Corner of staple broken or nearly broken thru	Wire too hard	Check wire being used.
		Supporter edges worn sharp	Check for worn supporter.
		Driver corners too sharp, or worn formers	Check for worn formers and driver.
	Corner of staple rounded	Worn anvil surface of gripper bar	Check for worn gripper bar.

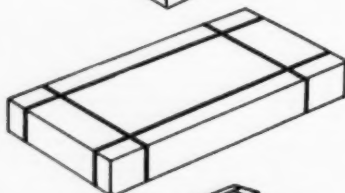
STRAPPING DO'S . . .



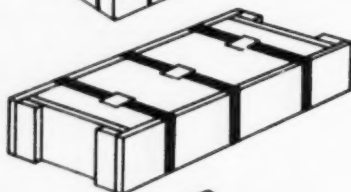
1. Use two or more straps on packages over 100 lb. per cu. ft. Place them about 1/6 of the length from each end.



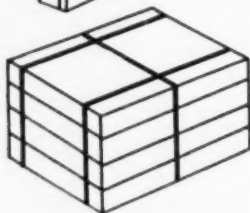
2. Use two cross straps on large square, or almost square, boxes. Apply them across the middle of the box at right angles to each other.



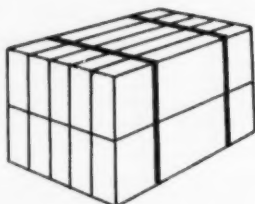
3. Use more than two straps on long narrow boxes. Apply lengthwise straps first. Girthwise straps should not be more than 24 inches apart.



4. Tighten strapping around corrugated containers so that it is flush with box at all points, but not tight enough to buckle box. On wooden containers, tension straps sufficiently to indent edges.



5. Bundle light weight or small containers together when shipping long distances or exporting, to lower shipping rates on entire lot.



6. Bundle light packages for express shipment into 10-lb. units. The cost of one 10-lb. unit is much less than the cost of 10 one lb. units.

Proper storage of paper tape is vitally important. It should be kept at moderate temperatures and humidities away from radiators, open windows, or sources of moisture. Rolls should be kept in the original wrapper with flaps tucked in after removal of a roll. ALWAYS use up your old tape first.

Gummed Tape Dispensers

In the use of water-activated gummed paper tape, there is no factor of greater importance than correct moistening. Proper conditioning of the glue depends on the amount of water and the pressure applied in the dispensing of tape. Under-moistening produces only a partial seal, no matter how much the tape is rubbed down. Over-moistening means a weak glue solution and a weak seal. Application becomes difficult because tape tends to slide around and longer rub-down is required. The selection of a correct dispenser is one way to insure proper moistening of tape.

With the great variety of tapes on the market today, it has become a big problem to select a machine which will give best results under specific conditions. The major points to consider in selection of a dispenser are generally: the type of tape to be used; the width of tape to be used; the outside diameter of rolls to be used; the length of the strip that you will want to dispense most generally; the difficulty with which the tape releases from the roll.

There are three major types of equipment for use with gummed tape.

1. *Pull-and-tear moisteners*—Have no pressure control, no water level control. Moistening depends entirely upon the operator's judgment. Best suited to sealing jobs where a single type of tape, always purchase from the same supplier, and always used on the same type of container holding the same weight.

2. *Machines with factory pre-set pressure device*—These generally

have water-level control, but do not have a variable adjustment for pressure during the wetting of the tape.

3. Machines with adjustable pressure plates—These usually include water level control, and permit the degree of moistening to be adjusted to fit each grade of tape and every glue formula. Often, these machines are electrically operated from a hand or foot switch, or from a lever, dial, or push buttons.

Pressure Sensitive Tapes

Pressure sensitive tapes come in a wide variety of backings (cellophane, acetate fibre, flatback paper, cloth) and may be used for sealing all types of containers including boxes, cans, corrugated and fibreboard tubes, bottles, bags, etc. In many instances, they are used for bundling in the shipment of long lengths like rod, pipe, etc.

Two simple and basic rules in the use of pressure sensitive tapes are: 1. the box should be clean and free of dust and dirt; 2. the right type of tape must be selected for the job intended. Where packages are destined for rough handling, wide widths of tape are desirable. Wherever freezing conditions or moisture are to be encountered, special highly adhesive tapes are usually desirable.

The do's and don'ts of pressure sensitive use are similar in a great degree to those of water activated gummed paper tapes.

They include:

DO—Rotate your stock of tape to release oldest tapes first. Always arrange stocks so that tapes which have been on the shelves longest will be taken automatically as orders are filled for the packaging department.

DO—Keep tape in the original containers. Tape containers are designed to provide protection for the tape packed in them.

DO—Keep the stock room where tape is stored cool and well-ventilated.

DO—Protect tape from exposure to direct sunlight.

DO—Fold back a $\frac{1}{4}$ in. length of tape for easy starting when a bare roll is being used alone, without a dispenser. This is especially necessary with transparent tapes where the end is often hard to

locate.

DON'T—Pick up tape by placing one or two fingers at the **END** of a strip of tape. Wherever you hold a piece of tape, you transfer the natural grease

(Continued on page 134)

STRAPPING DON'TS . . .



1. DON'T use the wrong size strapping. Too light a strap can result in failure and too heavy a strap is wasteful.

2. DON'T place straps improperly. Failure can often be traced to just such an error. All packages should

be studied carefully to insure that strapping is placed properly.

3. DON'T use improper tools. Many styles of tools are furnished by the various companies that make strapping. The right one can be found for nearly every application. Have new applications checked by a strapping maker's representative.



4. DON'T permit sharp corners, particularly metal, to come in direct contact with the strapping you are using. This type of carelessness can result in cut strap during shipment.

5. DON'T let strapping twist during application. Twist can result in damage, not only to the strapping, but to containers or objects brought in contact with it.





HAND MARKER can be used on any surface (round, flat, smooth, rough) on corrugated products, burlap, any fabric, rubber, asbestos, metal, glass, enamelled surfaces, waxed surfaces. It can produce up to 160 impressions per minute and uses quick drying ink.



HAND STAMP DUPLICATOR uses stencil with die impressed ready for use. Fill-in information is added with bold marking stylus, or typewriter may be used where small letters are needed. Both the form and the information are printed on container simultaneously.



CASE NUMBERING DEVICE marks legibly on wood, canvas, and any other rough surfaces. This unit is self inking, changes numbers consecutively, or will duplicate numbers, or it will repeat indefinitely as required. Can be used by operator at conveyor line.

THE BIOGRAPHY OF A PACKAGE

A primary reason for a large proportion of all damage claims can be traced to incorrect marking of packages. Here are some ideas which can help you to reduce damages, and cut costs.

YOUR package is excellent. You have planned it carefully from the very beginning (when you designed the product to be enclosed). The container has been selected with utmost care . . . cushioning, bracing, all interior packing has been engineered to do the job perfectly. Closure of the package suits every requirement you could think of. It appears that your job is done.

But is it?

Wouldn't it be ridiculous to have this fine package fail to arrive safely at its destination, or to fail to arrive at all, merely because it has been incorrectly or illegibly marked? Improper marking of packages has been cited as a large contributor to damages which last year led of over \$107,000,000 in claims which were paid out by American Railroads. Approximately 10% of that total can be attributed to unclaimed freight. Similar losses were experienced by trucking firms.

Of little consolation is the fact that carriers seldom fail to make good on most claims. Obviously, such tremendous losses can only result in higher freight rates.

You can do much to reduce damage costs merely through careful marking. Always be certain that each package is marked properly with necessary information concerning weight, lot, route, destination. Be

ticket for safe shipment . . .

a clearly marked package

sure that all information is not only clear, but that it is permanently affixed.

You can be certain of good, clear marking if correct use is made of: crayons and marking pens, tags and labels, addressing machines, hand markers, conveyor line markers, dies, stamps, automatic rotary imprinters, printing rolls, stencils, printed tapes and pressure sensitive tapes. Following are descriptions of types of marking material or equipment you can use, with hints for the proper use of each.

Crayons and Marking Pens

Wherever one-of-a-kind shipments are made, it is desirable to consider the use of crayons and marking pens for addressing, coding and special instructions. Crayons are available in a variety of colors for use on such materials as lumber, smooth wood, glass, and for general purpose application.

Marking pens operate in a manner similar to fountain pens and feature unusually large reservoirs for the special inks with which they write. In using this type of equipment, be sure above all else that good, legible handwriting or printing is used. Letters should be as large as space will permit. Tips of crayons, pencils and pens should be cleaned often since a dirty point will not permit proper marking and will make reading difficult.

(More on next page)

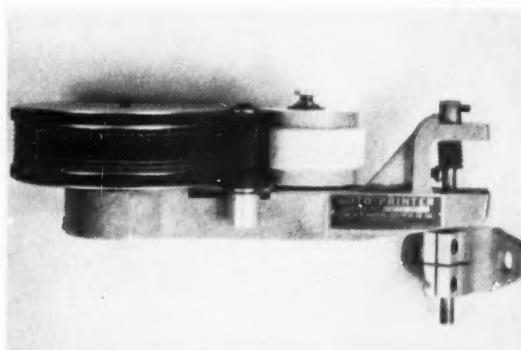
FOR ADDITIONAL INFORMATION . . .

. . . you can see equipment discussed in this article at the 8th National Packaging and Material Handling Exposition, in the following exhibits:

Exhibitor	Booth No.
Algene Marking Equipment Co.	206B
American Tape Printer Co.	323
Derby Sealers, Inc.	700
Adolph Gottscho, Inc.	113A
Mark'Andy, Inc.	509A
Markem Machine Co.	304
Marsh Stencil Machine Co.	500
Speedry Products, Inc.	525
Weber Addressing Machine Co.	517



ROLLER is being used here to corner-mark nailed wooden boxes. Used with obliterating ink, the roller can cover over old markings on a re-used container. It will cover over all previous markings in one coat and will dry in from two to five minutes.



CONVEYOR LINE MARKER automatically dates, codes or marks production runs of cartons, packages. It operates by friction between the moving package and the marker. Inking is through a felt roller with self contained reservoir. Uses rubber type.

Stencils

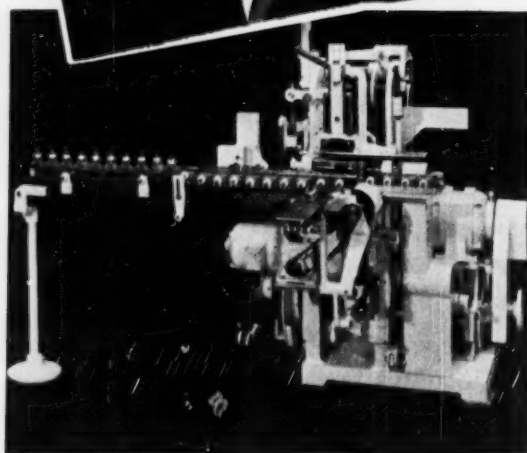
Stencils are well known for their usefulness in addressing shipments. With stencil cutting machines available today, they provide a quick, efficient method for clear marking of cartons, boxes, crates and any items to be shipped. Chances of error where the same size, quantity, color, grade and like details must be

marked on every package in a group are practically eliminated.

Stencil cutting machines, similar in operation to punch presses are available for perforating letters and numbers into stencil boards. Generally, they are available to stamp letters from $\frac{1}{2}$ in. to $1\frac{3}{4}$ in. high, up to four or six lines generally, and seven lines on certain types. Machines may be manually or electrically operated. Some are friction-fed, others have automatic paper carriages.

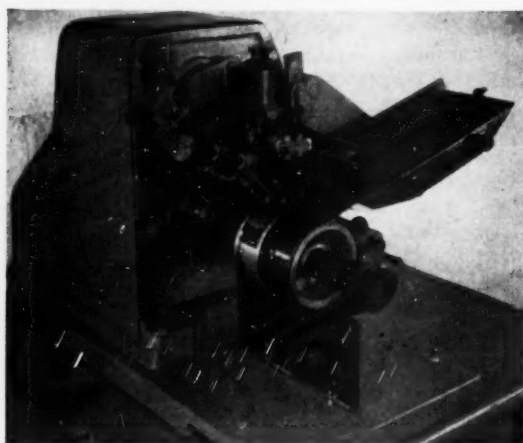
In using stencils, apply ink with care, using it sparingly. Too much ink on the brush causes the stencil to blur. If ink seeps beneath the stencil board, the message will smear. This problem is practically nonexistent when one uses "press button" fountain brushes which are available. With this type brush, a valve keeps ink sealed in a reservoir until a button is pressed. Then, it permits only enough ink to come through to the bristles for neat, clean marking.

Treat stencil brushes like fine paint brushes. They pick up dirt and dust which cause messy stencils. For healthy brushes, it is recommended that they be soaked in gasoline or kerosene occasionally and that they then be allowed to stand overnight.



LABELING MACHINE can apply from 25 to 60 labels per minute, depending upon operator. For greater production, special automatic feeds may be used so two, three, or four bottles may be labeled at one time.

LABEL PRINTER AND ADDRESSER is fast and simple to operate. It not only prints and addresses labels, but also cuts them off at just the right size. It also can keep count of number of labels printed.



CYLINDER MARKER for use on small bottles, vials, and small containers. Size of objects to be marked can vary from $\frac{1}{4}$ in. to $2\frac{1}{4}$ in. diameter with maximum printing area of $2\frac{7}{8}$ in. by six in.



MARKING PENS do a good job where packages which are not uniform in shape must be marked. Large reservoir in handle of pen permits many markings before refilling is necessary. Quick-drying inks are used.



STENCIL BRUSH has reservoir in handle for stencil ink. A press of a button releases just enough ink for a clean, sharp mark. It prevents over-inking and hard-to-read blots and smudges on packages.

Proper application is essential. Too much pressure is likely to fan out the bristles of the brush. A reasonably light pressure in a rotary motion is suggested for best results.

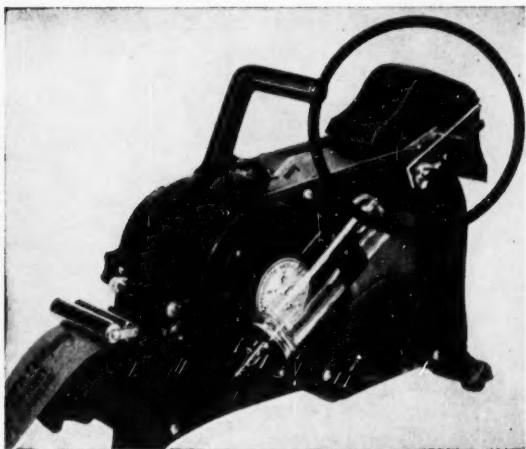
In most cases, the following size letters are recommended: for packages up to 18 in. long, use a $\frac{1}{2}$ in. stencil; for packages up to 24 in. long, use a $\frac{3}{4}$ in. stencil; for packages over 24 in. long, use a one in., or larger stencil.

Dies, Stamps, Automatic Rotary Imprinters

When it is desirable to mark continuously, like on a conveyor line, rubber dies, rocker stamps and automatic rotary imprinters are often used. These may



BOOKMATCH FOLDER contains no matches, but pressure-sensitive plastic marking tape strips, pre-cut to small label size. These labels are ideal for small packages destined for storage since they are easily cleaned.



TAPE PRINTING ATTACHMENT for use with any standard three-inch gummed tape dispenser. It makes possible the marking of trade mark, address, printing instructions while sealing tape is applied to package.



SELF-INKING CONVEYOR LINE MARKER is shown here marking flavor on tops of ice cream containers. The device may be mounted in vertical position as here, or it may be placed horizontally for side printing.

IF YOU HAVE TO ABBREVIATE . . .

use the abbreviations listed below. They are used universally and will be understood by everyone handling your package.

B/L—Bill of Lading	C.I.F.—Cost, insurance and freight
F/B—Freight Bill	
W/B—Way Bill	
B/O—Bad Order Notation	BXS—Boxes
L.C.L.—Less than carload	CTNS—Cartons
C.L.—Carload	CRTS—Crates
Min. Wt.—Minimum weight	NATD—Nested
NOIBN—Not otherwise indexed by number	BBL—Barrel
S.U.—Set up	BU—Bushel
K.D.—Knocked down	PKG—Package
F.O.B.—Free on board	MDSE—Merchandise
F.A.S.—Free alongside steamer	C.O.D.—Cash on delivery
C.A.F.—Cost and freight	WT.—Weight
	PT.—Pint
	QT.—Quart
	GL.—Gallon
	OZ.—Ounce
	CWT—Hundred-weight
	VOL.—Volume

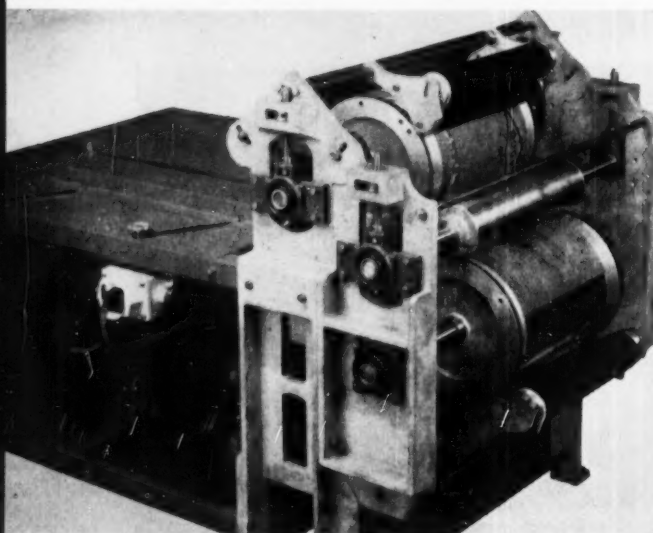
be purchased with or without changeable inserts.

Rocker stamps may be of a type which is inked with an auxiliary pad, or they may be self inking. They may use rubber type for marking, or they may use stencils similarly to duplicating machines. To use this latter type stamp, one need only mark the proper message on the stencil with stylus or typewriter, and affix the stencil to the printer. They will stamp clearly and distinctly on any flat or cylindrical, porous surface. Chances for errors are practically eliminated since only the original stencil need be checked. All markings will be identical to the stencil.

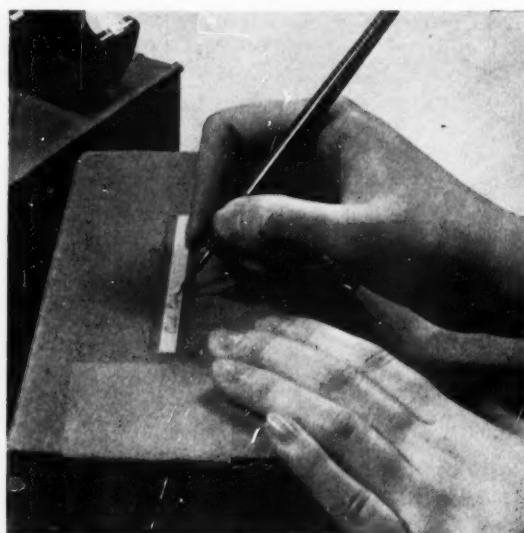
In some instances, operators stationed along a conveyor line with hand markers do the marking of packages as they go by. In many other cases, the marking equipment is attached directly to the conveyor and prints through friction with the containers moving on the line. Markers may be attached to case sealers and other types of packaging machinery. These units operate automatically, with no supervision except for changing the message on the roller, or for re-inking.

Roller type hand printers are available to give marking speeds of up to 160 impressions per minute. These may be purchased with permanent dies or with provisions for changing the information to be printed.

(Continued on page 169)



AUTOMATIC PRINTER for imprinting trade marks and other information on knocked-down corrugated or fibreboard shipping containers. Features high speed.



PLASTIC MARKING TAPE consists of plastic strip laminated to pressure sensitive backing. Markings on the tape may be made with a stylus, pencil, nail, etc.



Photo courtesy Monarch Rubber Company

Stops shipping damage; cuts costs 46% with Brainard Strapping Service

WHAT would you do if shipments of your products continually arrived broken and damaged? This manufacturer of industrial tires called in the nearest Brainard Strapping System salesman, Rudy Schulz of Wooster, Ohio, for his ideas.

After following this shipping problem right into the boxcar, Rudy came up with specific recommendations, followed by a demonstration *on the job*. The old method of wood blocking was dropped. Now the pallets of tires are loaded tightly together and steel strapped to walls and to a special

bulkhead designed around the pallets.

Results—damage in shipment and costly claims have been completely eliminated. A source of customer dissatisfaction has been removed. Yet this improved shipping method actually has cut costs 46% per boxcar shipment.

Brainard salesmen are factory trained to give you *recommendations* and *demonstrations* that can improve the efficiency of your materials handling and shipping operations. Put Brainard's experience to work for you now. Offices located throughout the U.S.



New Portable Strapping Kit—the Brainard Utilikit is a completely self-contained, strapping outfit. Easily carried from job to job. Ideal for the small volume user. Write for booklet.

Write for complete information.
Brainard Steel Division, Sharon
Steel Corp., Dept. K-10, Griswold
Street, Warren, Ohio.



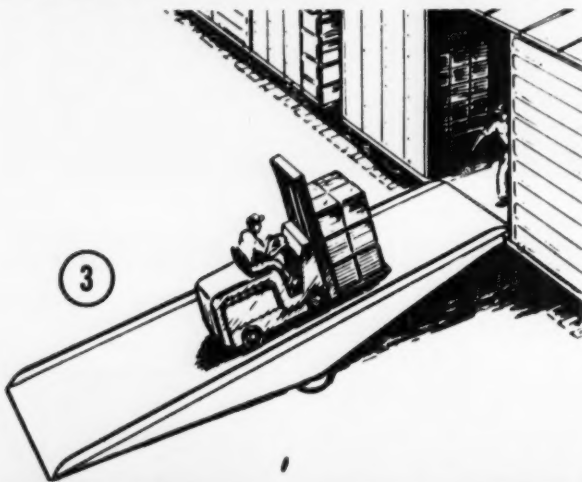
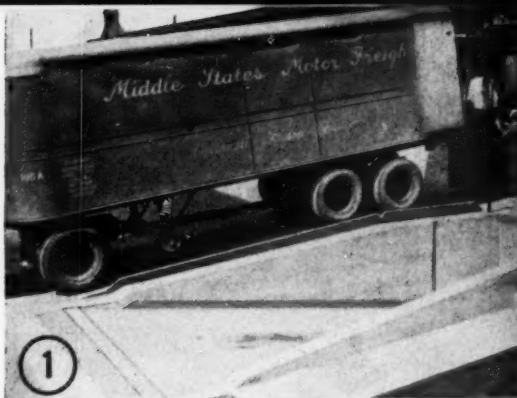
STEEL STRAPPING

Circle No. 22 on Reader Service Card for more information.

INTO THE VEHICLE . . .

1. HYDRAULIC LEVELING DEVICE is installed in front of dock and raises or lowers truck to match its bed with height of the dock. Relieves congested docks.

2. FORK TRUCK and castored skid bin provide a means of loading trucks where there is no dock and where volume is not great.



THE BIOGRAPHY OF A PACKAGE

In-transit damage, mis-directed shipments, excessive shipping costs can all be slashed through careful attention to dock-handling methods, methods of transferring material from dock to vehicle and correct in-the-vehicle lading protection.

ROUGH HANDLING on the dock and in transit are two conditions which should not be taken as a matter of course. True, a package should be designed and constructed to withstand even the toughest conditions, but for complete protection, handling and shipping methods should be made as safe and gentle as possible.

There is much you can do to be sure that your packaged product receives intelligent handling all the way to the customer. As much energy and study should be devoted toward that end as to the manufacturing and packaging of your product. Proper selection of dock handling equipment, dock accessories and lading devices for use in the vehicle will pay you dividends in

the following ways: handling time will be reduced; expensive in-transit damages will be slashed.

Dock Handling

Important considerations in the selection of a dock handling system and of equipment to be used in such a system are: 1. volume and weight of material handled on the dock; 2. size of the dock.

The volume and weight of products to be handled on your dock will give a good indication of the capacity units required. Since the size of the dock determines the traveling distances to be expected for your equipment, it obviously has a direct bearing on the handling system to be used.

A good dock operation is one where the loading and

ood package
rocedures include . . .

safe dock handling and shipping

FOR ADDITIONAL INFORMATION . . .

. . . you can see equipment discussed in this article at the 8th National Packaging and Material Handling Exposition, in the following exhibits.

Exhibitor Booth No.

INDUSTRIAL TRUCKS AND ACCESSORIES

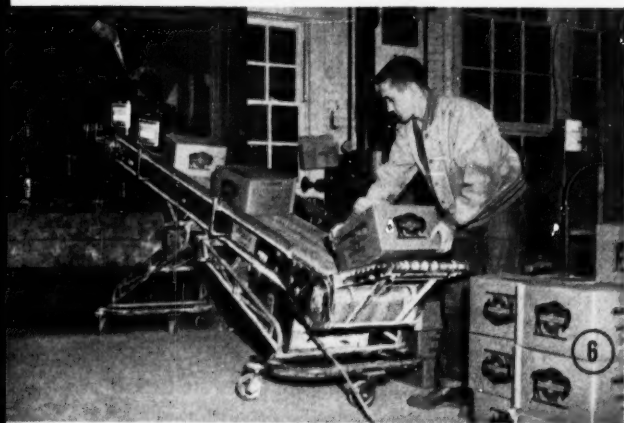
Baker-Raulang Co.,	
Industrial Truck Division	405, 407, 409
C & D Batteries, Inc.	507A
Thomas A. Edison, Inc., Storage Battery Div.	206
Gould-National Batteries, Inc.	317
Langley Co.	408
Lewis Shepard	108, 108A
Loomis Machine Co.	615
Market Forge Co.	208
Moto-Truc Co.	315A, 315B
New England Industrial Truck, Inc.	118
Service Caster & Truck Corp.	807, 715
Yale & Towne Mfg. Co.	102, 104, 106

CONVEYORS & CONVEYOR ACCESSORIES

Acme Steel Co.	400, 402
Market Forge Co.	208
Rapids-Standard Co., Inc.	207A, 207B
U. S. Steel Corp. Cyclone Fence Division	207, 209
Conveyor Specialty Co., Inc.	310

TOTE BOXES, SKIDS, PALLETS

Market Forge Co.	208
U. S. Rubber Co.	900, 901

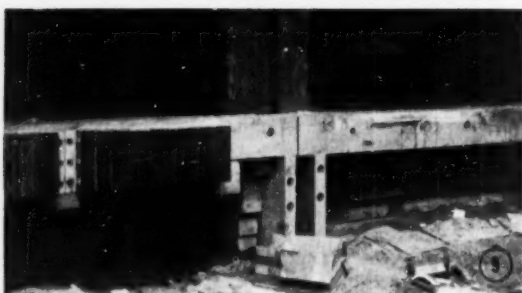
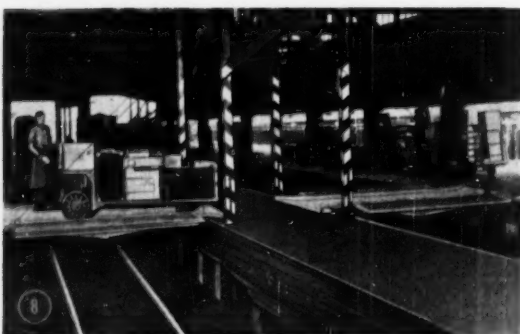
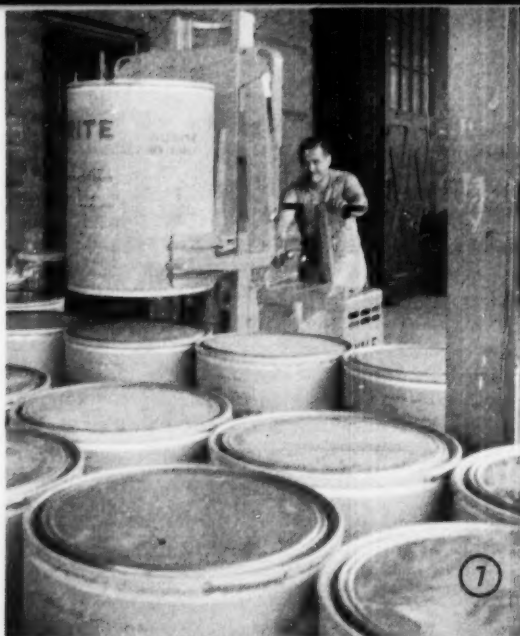


3. **MOVABLE LOADING RAMP** makes a loading dock out of any convenient ground level area. It is easily moved to any place in yard where truck is parked.

4. **HYDRAULIC DOCK RAMPS** raise or lower to meet height of any truck or trailer. Note long length to prevent steep grades. Some units may be hinged onto edge of dock if space they take up cannot be spared.

5. **FORK HIGH LIFT WALKIE** provides fork truck stacking features inexpensively where hauls are not too long. Has capacity of 3000 lb. and is electric.

6. **PORTABLE CONVEYOR** maintains smooth flow of packages from warehouse stacks directly into truck.



7. REMOVABLE DRUM CLAMP adapts fork high lift walkie to the stacking and loading of different size drums.

8. MAGNESIUM DRAW BRIDGES are light weight and are raised or lowered easily to permit free movement in shipping area with several tracks below floor level.

9. LOADING DOCK BUMPER prevents damage to edge of dock when trucks bump into dock.

10. INDUSTRIAL TRACTOR may be walked or ridden by operator. Provides flexible handling method where platform trucks are used to carry shipments accumulated in stock room.



dock handling and

unloading of handling equipment is at a location on the dock which results in minimum of travel to and from the storage area.

In making a selection of equipment for use in dock handling, be sure to give complete consideration to each of the following points:

1. Two-wheel hand trucks of various designs and styles are best suited to docks where daily volume is 50,000 lb. or less. They require cross aisles about 3½ ft. wide and side aisles 5 ft. wide.
2. The fork truck-and-pallet system of handling material on docks is economical and practical in most instances where volume is substantial and when material must be floored prior to loading. The fork truck moves fast and can stack material to utilize the cube. It will handle shipments as units and thus reduce the manual handling required.
3. It has been estimated that approximately 90% of miscellaneous material on docks can be palletized. Systems utilizing pallets, skids, pallet-containers of various types, etc., have the advantage of unit handling of a number of items at a single time. Hand lift trucks, powerized walkies and tractor trailer trains can all be used advantageously in such systems of handling on docks.
4. Conveyors used to handle freight across docks are usually of the power chain type, either floor or overhead, and are used to transport material-carrying carts from one carrier spot to another. They are adjustable to various speeds and are economical. Generally, such conveyors are ideally suited for large transfer operations and long docks. It is important to remember, however, that where packaged products must be floored,



Continued

the carts used in connection with floor or overhead chain conveyors may take up excessive floor space and it may be necessary to locate the conveyor some distance from the dock edge to allow parking space for carts adjacent to the vehicle loading spots.

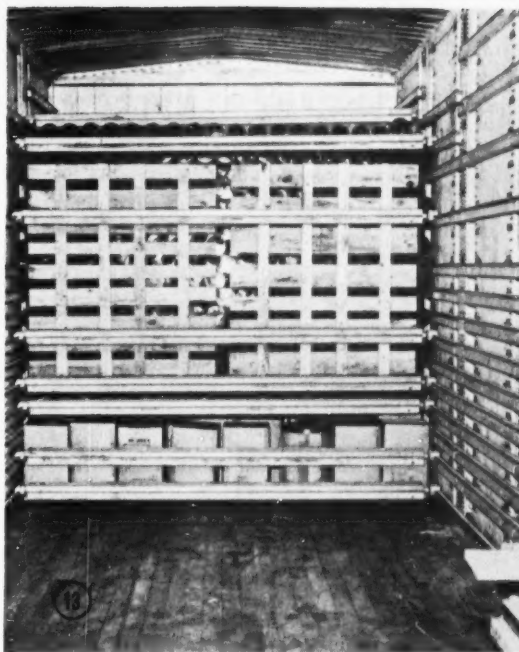
5. Electric or manual hoists may be used with cranes or on monorail tracks where heavy, bulky items must be moved across the dock. With this type of system, it is best to extend tracks over the apron area so that open trucks or trailers may be loaded or unloaded.

Storing on the Dock

The goals in planning the stacking of floored freight on a dock should be: a maximum utilization of available floor space and a reduction of damage to products. If manual handling is used, stacking is largely limited to the worker's reach and seldom exceeds six feet unless packages are exceedingly light.

A shipment stored on a dock should be able to be found easily and picked up again without rehandling or restacking. "Digging" into stacked material on a dock to find units of a particular shipment can be prohibitively expensive. Pallets should always be spotted from the direction in which they will be removed. They should be stored from the cross aisles to eliminate congestion of main aisles.

If four-wheel hand trucks are used for storage on the dock, a sawtooth arrangement of the trucks will conserve working space. These storage locations should be constantly observed to avoid re-handling freight in the doorway area. Side aisles must be kept clear for free entry into vehicles. If this is not done, stored material may be moved several times before it is loaded. If there is no pattern for storage, trucks are



IN THE VEHICLE . . .

11. STEEL STRAPPING and dunnage prevent movement of crates. Impact recorder provides record of impacts during shipment.

12. ADJUSTABLE COMPARTMENTS make it possible to segregate material going to several different places.

13. ADJUSTABLE BRACES moving independently of each other give unusual flexibility in the bracing of different size and shape packages in this specially equipped box car.



14. RATCHET BULKHEAD can be placed anywhere in wooden sided box car or trailer. It is adjustable to fit into vehicles from 8 ft., 9 in. wide to 9 ft., 4 in. wide.



IN THE VEHICLE . . .

Continued

often pushed out into aisles to make room for long or bulky loads and traffic is greatly hindered.

Loading the Vehicle

The actual transfer of goods from shipping dock to vehicle is often a difficult problem where many shipping departments lost a great deal of efficiency. It is always most desirable to be able to deliver packaged material directly from storage into a vehicle. Even with the most careful planning, however, dock heights cannot be expected to fit perfectly the heights of beds of the various freight cars, trucks and trailers onto which loads must be placed for shipment.

Your best bet to defeat this problem is to have a dock which comes close to accommodating the majority of carriers. For the non-conforming vehicles, bridge

plates and other dock leveling devices can compensate for the variances in heights. Or, you can use portable conveyors, portable cranes, fork lift trucks, and similar equipment to do the loading.

Portable Bridge Plates

There are two main types of bridge plates:

1. Manually portable models are easily handled and positioned by one man.
2. Mechanically portable bridge plates, too heavy for manual moving, and usually positioned by equipment like fork trucks, hoists, etc.

Safety is an important consideration in the selection of any type of bridging equipment. Safety treads on bridge plates reduce skidding and slipping to a minimum. Beware of plain, unsupported home-made bridge

(Continued on page 163)



15. LOADING BASE made of hard, lightweight chestnut fiberboard is said to be able to support any unitized load of bagged goods that a fork truck can lift. Formed flap along one edge permits tapered forks of a fork truck to slide under the load, even without a pallet, and to place entire unit in freight car. Fiberboard base is expendable and can accompany shipment to destination.



THIS HALF A LOAD IS BETTER THAN ONE

These men have almost filled one end of a car equipped with an Evans DF Loader . . . have quickly secured in only *half* this car all the lading that would ordinarily take up the entire floor. In this case, one car does the work of two . . . with the Damage Free, Dunnage Free Loader.

In addition to easing the box car shortage, the DF Loader also eliminates dunnage—saving the expense of supplying and installing special bracing. Further, it cuts damage to both cars and merchandise down to an absolute minimum—saving the expense of handling damage claims, saving the nuisance of replacing damaged merchandise, saving the waste of hard-to-get materials.

The Evans DF Loader is a permanent part of the box car; there is nothing for shippers to buy. Cars equipped with this modern load-locking device are

available, at no extra cost, from 30 Class I railroads. To learn how your organization can put this modern equipment to the most profitable use, consult *Evans Products Company, Railroad Loading & Equipment Division, Dept. AF-10, Plymouth, Mich.*

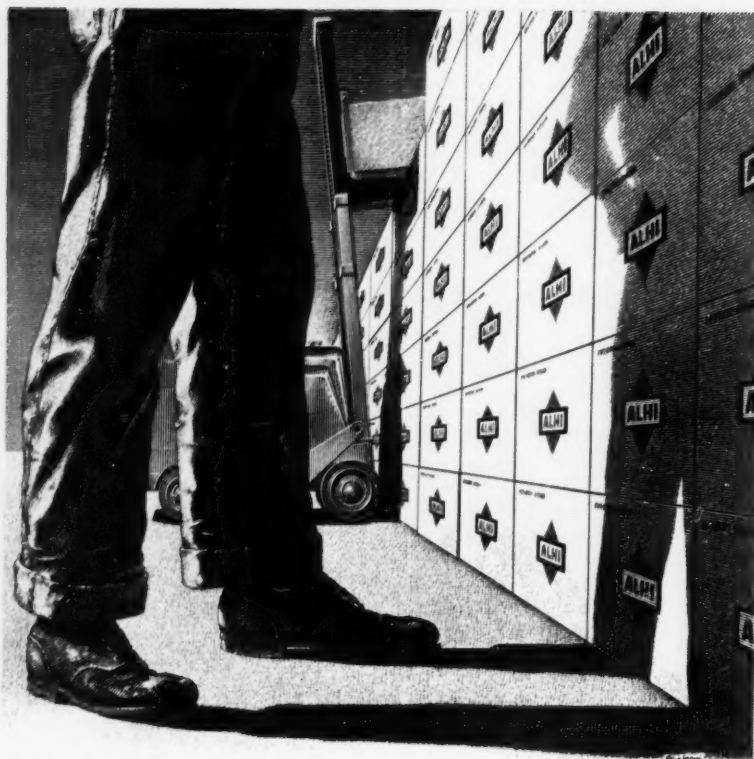


Booklet Available on Request

Packed with factual information, it shows how railroads can earn extra revenue and shippers can cut shipping costs with time-tested DF equipment. Be sure to send for your copy today. No obligation.

... **EVANS** ... **DF LOADER** ...  ...
TO ELIMINATE DAMAGE & DUNNAGE

Circle No. 50 on Reader Service Card for more information.



Gaylord Boxes are Easy to Set Up... Hard to Break Down

Solid, straight-standing Gaylord Boxes are designed for fast handling and product protection... from packing until final delivery. Your best assurance of tough, resilient, corrugated boxes is Gaylord's careful quality control... from the planting of pulp forests, through every step of box manufacture.

For sturdy boxes with easy handling and attractive appearance "built in," contact your nearby Gaylord Sales Office. You'll find it listed under "Boxes (Gaylord)" in the classified section of your phone book.



Their seen and unseen quality gives you an extra margin of safety.

GAYLORD CONTAINER CORPORATION

General Offices: ST. LOUIS • Sales Offices Coast-to-Coast



CORRUGATED AND SOLID FIBRE BOXES • FOLDING CARTONS • KRAFT BAGS AND SACKS • KRAFT PAPER AND SPECIALTIES

Circle No. 54 on Reader Service Card for more information

CLOSING . . .

(Continued from page 121)

from your fingers and reduce the tape's "tack" at that spot. It is much better to pick up a strip of pressure sensitive tape by placing one finger about 1½ inches from the end.

Reinforced Tapes

An example of the savings to be gained through the proper use of reinforced tapes is found at Pyramid Mouldings Inc., Chicago. This company ships up to 500 lb. of metal mouldings in double wall corrugated cartons, reinforced with three short strips of reinforced tape. The strips go less than half-way around the cartons. It was formerly costing the company about \$9.00 per unit to package its product. Even more serious, the packaging line was falling behind other operations.

Material costs have now been reduced more than 50% and labor savings have amounted to more than 75% as a result of the correct use of reinforced tape.

Both water-activated and pressure sensitive tapes may be purchased with reinforcement material in the form of filaments running lengthwise in the tape. (Another method of getting added strength is through a strong cloth backing laminated to a paper base). Of course, the primary advantage of this type tape is the added strength. Only few pieces are required for any closing job, and they may be relatively short in length. Time of application is also extremely short. Accompanying this article are sketches showing the use of reinforced tapes in relatively short lengths for closure of standard containers.

Steel Strapping

New ways to achieve cost-savings in the use of steel strapping for packaging purposes are constantly being developed. Through the efforts of groups such as the Association of American Railroads, container testing laboratories, and manufacturers of steel strapping, much has been learned



**Top and Bottom
Closing Pays
Packaging
Dividends
at Candyland**

with an International Stapler

At the immaculate Candyland plant in Sioux City, Iowa, "women in white" pack a steady flow of gaily colored bags of soft marshmallows. INTERNATIONAL Stapler Conveyor Unit pays packaging dividends—closing 400 cartons per hour, stapling tops and bottoms in one simple operation.

Here is another example of INTERNATIONAL Stapler's packaging versatility. Like thousands of INTERNATIONAL Staplers now serving all types of industry, this unit provides clean, secure closing at high speed—at lower cost—under rigid sanitary conditions.

Says Mr. Nathan Cohen, President of Candyland: "Since its installation, we have never had a packaging bottle neck. The girls in our packing depart-

ment operate INTERNATIONAL Staplers easily. We feel that our money was wisely invested."

Like all INTERNATIONAL Staplers, this unit occupies minimum floor space and allows complete operator freedom. It's simultaneous top and bottom stapling action, available only in INTERNATIONAL Stapler equipment, offers outstanding time and motion economy.

As Mr. Cohen says: "This INTERNATIONAL Stapler handles our packaging requirements quickly and surely. We recommend this equipment to any manufacturer with similar packaging problems"

You will find 20 models ready and able to cut your packaging costs and build your profits. Investigate INTERNATIONAL Stapler Equipment now. Ask for Bulletin C/201 covering the full line.

Package for profit . . . use genuine International Staples for faster, finer closures.

a seal of security —



INTERNATIONAL STAPLERS

International Staple & Machine Company
808 East Herrin Street, Herrin, Illinois

Circle No. 77 on Reader Service Card for more information

Why not **PRINT** and **ADDRESS** your labels in one operation?



The Weber KC-E
Label Printing
and
Addressing
Machine

SOLVES MULTIPLE ADDRESSING PROBLEM. SAVES COST OF PRE-PRINTED LABELS.

How long does it take one girl to prepare 50 shipping labels with the same address and shipping information? 5, 8, 10 minutes? The Weber KC-E machine will do it in 30 seconds and will print the label form at the same time! Multiply these savings in time, labor, and material by the number of quantity shipments you make each week and you'll immediately see why this modern machine is in such great demand.

If your company is now preparing quantities of shipping or product identification labels with the same information, whether it's 25, 50, or 1,000 labels at a time, it will pay you to investigate the advantages of the Weber KC-E. A "trial-rental" plan offers you the opportunity of giving the machine an on-the-job test at a nominal cost.

Weber

LABEL AND MARKING SYSTEMS
Division of Weber Addressing Machine Co.

Mail coupon for free sample
packet of labels printed by KC-E
Machine and detailed information.

Weber Label and Marking Systems
Dept. P-3, Mount Prospect, Illinois

- ☐ Send sample labels and more information.
☐ We would like to see the machine in action.

Name _____

Title _____

Company _____

Address _____

City _____ Zone _____ State _____

Circle No. 139 on Reader Service Card

CLOSING

Continued

in recent years about proper methods for using this material.

Constant study has resulted in the six strapping Do's which accompany this article.

Several methods have been developed pertaining to the use of strapping with corrugated or fibre board cartons. One type of container, a multi-sided box built to fit any shape product, incorporates interlocking flanges on top and bottom. Lids are put on, interlocked, and then strapped firmly, to make a closure which cannot be loosened. Half-slotted types of corrugated boxes can be sealed in the usual manner, then given added reinforcement with one or more straps, depending on weight of contents and size of package. If this is done correctly, the container whether small and heavy or large and bulky, has an improved chance to reach its destination in good condition.

Before you can select strapping for use in preparing your products for shipment, you will want to know: 1. the type of container which is to be strapped, (nailed wooden box, crate, corrugated carton, bundles of tubes, skid, pallet, etc.); 2. the weight and size of the containers which will be strapped.

In shipping non-compressible items, the use of strapping often makes it possible to stack or nest unit loads. The nature of the product, of course, determines whether protective padding with corrugated paper, board or other cushioning material need be used to prevent dents or scratches.

It is important to remember that regardless of how a product is shipped, its package should be designed for individual shipment to provide added insurance against loss. Strapping on the outside is a positive means of closure which is strong, pilfer-proof, easy to apply and easy to remove with the proper tools.

One of the most common mistakes made in the use of steel strapping is the failure to use the proper size strapping to suit the application. It is vitally necessary

Circle No. 158 on Reader Service Card

POWER LINE AIR STAPLER

3 times as fast as hand nailing

The Power Line Stapler replaces the old fashioned method of making ends in boxes.

Long throat allows operator to fasten ends in rear cleats of box with ease. No more mashed fingers or skinned knuckles when the Stapler is used.



Drives up to a one inch leg staple. So light a girl can operate machine. Power Line Hand Staplers also available for this application.

Write for illustrated folder.

POWERS WIRE PRODUCTS COMPANY

1590 Monterey Pass Rd.

Monterey Park, Calif.

P. O. Box 216

Monroe, Michigan

Sales representatives:

Chicago—Memphis—

New York

PRINT YOUR OWN SHIPPING CONTAINERS OR MULTI-WALL BAGS

... as you need them



**INDUSTRIAL'S
AUTO PRINTER**

is suitable for imprinting information, addresses, marking, or whatever you may require on your containers or multi-wall bags. It is capable of printing as many as 2400 unit per hour. Eliminates hand stenciling.

This is just one of Industrial's coding and marking machines designed specifically for your needs to assure more efficient marking and movements of materials on production lines. Marking equipment is also available for conveyor line use and for MUNITIONS marking.

Let us help you—send us your marking problem; we will do the rest.

Write for catalog today.

INDUSTRIAL MARKING EQUIPMENT CO.

Designers & Builders of Marking Equipment for Industry

DEPT. F., 454 BALTIC STREET

BROOKLYN 17, N. Y. • MAIN 4-2601

Circle No. 76 on Reader Service Card

Give Your
Product a
**SALES
LIFT**
with
**REYNOLDS
ALUMINUM
FOIL PACKAGING**



... and see how you can slash hand-labor costs and pilferage!

Lift, roll, *push* production. But remember at the end of the line is a *pull*... a sales pull. That pull must come from everybody your product meets... wholesalers, retailers, PA's, final users. And to them *the package* is your salesman... a salesman now all-important because everybody has become package-conscious, from toolroom clerk to Joe Consumer.

That's why industrial manufacturers are now taking lessons from the spectacular sales successes of Reynolds Aluminum Foil packaging in foods, candy, gum, cigarettes. They see that *nothing sells like foil*. They know that *nothing protects like foil*. So they call in the

Reynolds expert to talk foil packaging, AND THEN SOMETHING ELSE HAPPENS.

Often the Reynolds man opens up a whole new picture of *automatic machine packaging*, using self-sealing laminations of Reynolds Aluminum Foil. Now the manufacturer sees hand labor eliminated... hand labor that sometimes costs more than the material being packaged. In many cases where pilferage has been a serious factor, he can eliminate that, too.

To develop just such complete packaging programs—as well as the packages themselves—is the function of Reynolds, world's largest producers of aluminum foil. Whether your product can best use

simple foil wrapping or foil-laminated pouches, over-wraps, canisters or cartons, our representative can advise you fully—including details of machine operation. Call the nearest Reynolds Sales Office or Reynolds Metals Company, General Sales Office, Louisville 1, Ky.

Foremost Producer of
Materials for
**MILITARY
SPECIFICATION
PACKAGING**

Consult the Reynolds man
on what to use and how.



REYNOLDS ALUMINUM

SEE "MISTER PEEPERS," starring Wally Cox, Sundays, NBC-TV Network

Circle No. 114 on Reader Service Card for more information.

BAG CLOSING MACHINES FOR EVERY NEED . . .



**...from UNION SPECIAL'S
Complete Line! . . .**

FOR lower production costs . . . stronger, neater closures . . . ability to get out rush orders in a hurry, you can't beat Union Special Bag Closing Machines! Specially built to stand up under heavy production schedules, these machines provide the high output rates needed to meet modern competitive conditions.

In the Union Special line, it's easy to find the right unit to meet your particular requirements. ASK FOR RECOMMENDATIONS.

Ask for Recommendations

UNION SPECIAL MACHINE CO.
415 N. Franklin St., Chicago 10, Ill.

Gentlemen: Without obligating me, please furnish information on bag closing equipment to handle the following production:

Kind of bags used? _____

Filled weight of bag? _____

Material being packed? _____

Maximum bags per minute? _____

Check-weighing required? _____

Conveyor required on Machine? _____

Power: ☐ D.C., ☐ A.C., Volts _____

Phase _____ Cycles _____

Name _____

Company _____

Address _____

Circle No. 132 on Reader Service Card
138

CLOSING

Continued

that this matter be carefully checked, since too light a strap can result in failure to do a satisfactory job, and, on the other hand, too heavy a strap, while it will not fail, will result in higher cost for packing material than is really necessary.

Strapping Tools

Incorrect tools can result in failure of a shipment just as can incorrect strapping. There are many styles of tools furnished by the various companies that make strapping and one can be found for nearly every application.

For $\frac{3}{8}$ inch or $\frac{1}{2}$ inch flat strapping, used on relatively light-weight containers, pliar-type stretchers are generally adequate. For 18½ ga. to 16 ga. round strapping, predetermined tensioning tools are required for effective performance. For heavier sizes of strapping lever operated tools are recommended.

Automatic and semi-automatic strapping equipment can be supplied for conveyor line use. They may have all operations (tensioning of the strap, cutting it from the coil, making the welded joint) all electronically controlled. Such equipment is worth looking into if your packaging lines operate at high speeds.

Stapling and Stitching

The correct number of staples, used in the right pattern on a package, is important to your package if you use this method of closure. That actual number of staples necessary, and the pattern you should use are to be decided upon only after careful study of your package and after consultations with stapling equipment manufacturers.

Whether your stapling equipment is hand or foot operated, cleanliness is a prime factor in lengthening its life. At frequent intervals, remove dust, dirt, staples, and odd pieces of scrap which fall or fly into the machine. A blow gun is handy for cleaning working parts.

Working parts should be kept

IN WAR OR PEACE

YOU CAN

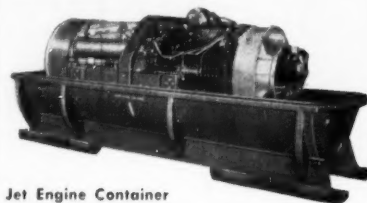
Cut Your Shipping Costs



Hermetically Sealed

Shipping costs continue to mount up and profits slip down whether it's in time of war or peace.

YOU CAN CUT THESE COSTS . . . With a specially designed Champion **re-usable** shipping container. These containers can be engineered to meet any specifications.



Jet Engine Container

SEALED FOR A DAY OR FOR YEARS

. . . And yet ready for immediate use when removed from your Champion Metal Container. Containers are sealed under pressure . . . special dehydrants make them moisture-proof.

DOLLAR SAVING FEATURES

- \$ Containers are reusable.
- \$ Your products can be taken directly off production line and stored in Champion Metal Containers.
- \$ Dirt-proof, moisture-proof, shock resistant.
- \$ Preparation costs are reduced — ship and store in same container.
- \$ Ready for use when taken from container . . . no extra preparation costs.

LET US HELP YOU WITH YOUR SHIPPING PROBLEMS

WRITE TO SPECIAL PRODUCTS DIVISION
DEPT. S

**THE CHAMPION
COMPANY**

SPRINGFIELD 99, OHIO
Circle No. 29 on Reader Service Card
FLOW • OCTOBER, 1953

lubricated. Wherever the manufacturer has supplied an oil hole, use it. A few drops now and then on any sliding surfaces will prolong the useful life of the equipment. If the machine is operated by air pressure, a light grade oil should be injected into the air supply line. This will lubricate the valves, air cylinders, and, if the exhaust is properly directed, other parts of the machine. Some pneumatic stapling machines are equipped with air line lubricators and lines to direct the exhaust air to lubricate as needed.

Be certain that the staples you are using are the right ones for your machine. Too often, fine stapling equipment has been ruined because someone has tried to fit a staple into the core of a machine; found that it apparently fit, and with no further consideration as to whether it is actually the staple which belongs to that particular core, tries to make it operate, come what may. It is a cardinal sin which causes wear, jams and obviously causes an imperfect stapling job.

Proper adjustment of your stitching and stapling machines is a must. If the equipment has several working parts which are adjustable, see that these are properly set. Sometimes, adjustments are provided to make up for wear. If so, use them. An improperly adjusted machine may wear out long before its life should be used up. If a machine is air powered, use as little pressure as possible to get the desired action. Using excessive pressure increases wear, increases possibility of breakdown.

FLOW'S thanks to the following for information and photographs used in the preceding article: A.B.C. Packaging Machine Corp.; Acme Steel Co.; Allegheny Steel Band Co.; Better Packages, Inc.; Bostitch; Brainard Steel Div., Sharon Steel Corp.; Derby Sealers, Inc.; Diagraph-Bradley Industries, Inc.; Fastener Corp.; A. J. Gerrard & Co.; Gummed Industries Association, Inc.; Hampton Mfg. Co.; Inland Wire Products Co.; International Staple & Machine Co.; Polyken Dept. of Bauer & Black Div., Kendall Co.; Marsh Stencil Machine Co.; Mid States Gummed Paper Co.; Minnesota Mining and Mfg. Co.; Mystik Adhesive Products; Nashua Corp.; Powers Wire Products Co.; Signode Steel Strapping Co.; Stanley Works, Steel Strapping Div.; Tape, Inc.; U. S. Steel Corp., Gerrard Steel Strapping Div.



Another good way to put the skids under your handling costs

Through the packaging magic of Signode Steel Strapping!

Shown here is a successful adaptation by Signode of a *basic* skid-loading method, made for a shipper of tin plate.

This commodity can easily be a shipper's headache. It is heavy and slippery, and its surfaces are vulnerable — easily dented and scratched.

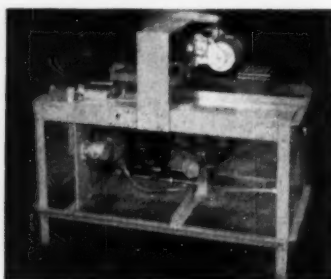
So Signode engineers wrapped each unit in heavy, moisture-repellent kraft paper, placed metal protectors on the edges, and fastened it to a skid with Signode Steel Strapping. Results? Safer, easier handling at lower cost!

Can Signode help you cut handling and shipping costs through practical adaptations of one or more *basic* skid-loading methods? *It costs you nothing to find out!* Write Signode Steel Strapping Co., 2618 N. Western Ave., Chicago 47, Ill. Offices coast to coast. In Canada: Canadian Steel Strapping Co., Ltd. Foreign subsidiaries and distributors world-wide.

SIGNODE Steel Strapping Co.

SEND FOR FOLDER SHOWING 6 BASIC WAYS OF UNITIZING
Circle No. 119 on Reader Service Card for more information

WHAT'S NEW... in Packaging and Shipping Equipment



Munitions Marking Machine

The munitions marking machine shown here was designed and built by The Industrial Marking Equipment Co. Inc. The machine was designed for use by Remington Arms Co. It is a completely automatic ammunition can marking machine with a speed of approximately 25 cans per minute. The machine is adjustable for several sizes of cans. Although this machine was built for munitions work, it can be adapted to civilian products which lend themselves to this type of marking.

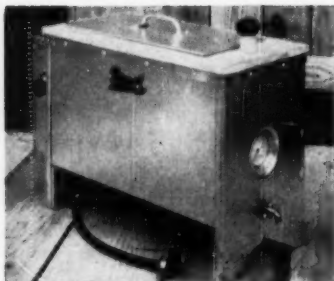
Circle No. 184 on Reader Service Card for more information



Air Extractor

This air extractor manufactured by Cargo Packers Special Products Company is said to make polyethylene wraps practical to apply. The machine collapses the bag and permits easy sealing by the packer. No skill is required to operate the machine, and an important feature is finger-tip control by means of the nozzle-mounted switch. A slight pressure of the thumb or palm operates the air extractor, and the operator has positive exhaust control which eliminates bag fractures. The machine is mounted on casters for portability.

Circle No. 185 on Reader Service Card for more information



Plastic Dip Tanks

Shown here is the double-vat electric dip tank manufactured by Aeroil Products Company, Inc. Called the "Plast-O-Dip #3," it meets the indirect heating specifications of plastic skin compounds such as ethyl cellulose and cellulose acetate butyrate. The manufacturer claims that aluminized surfaces of the inner vat assure full transparency to clear plastics and guard against discoloration. Nominal capacity is 3 gallons, with dip space length of 10½ inches, width of 6 inches, and depth of 6 inches. Overall dimensions: length, 27 inches; width, 12½ inches; height, 19 inches.

Circle No. 186 on Reader Service Card for more information



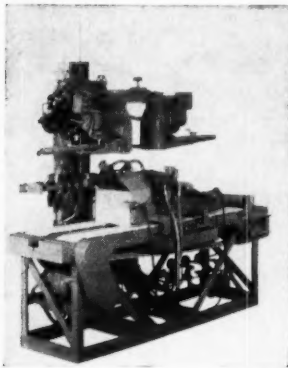
Glass Fiber Package Cushioning

Manufactured by Glass Fibers Inc., this glass fiber resilient board material, called "Vibraglass," is said to be incombustible, fungus and vermin proof, lightweight, chemically neutral, easily fabricated, insoluble in water and common solvents, and to have long endurance life with no permanent set. Made of glass fibers compressed and bonded, it is composed of highly flexible "glass springs" which produce immediate recovery after compression. The basic components can be varied with respect to resiliency, spring rate, vibration absorption and space requirements.

Circle No. 187 on Reader Service Card for more information

Automatic Carton Stapling Machine

The International Staple & Machine Co. has announced development of a new 100% automatic carton stapling machine for closing center slotted corrugated or fibre cartons. Designed to fit into



existing conveyor systems, the stapling machine is built to include a conveyor belt that receives the filled carton from the main conveyor system prior to the stapling operation. As the carton is conveyed to the stapling position, it hits a trip-switch which actuates a device that automatically

centers the carton at exactly the right spot for proper cross-stitch stapling of top flaps. While the carton is being centered, it continues to move forward on the conveyor to actuate a second trip-switch which causes an automatic mechanism to close the carton's end flaps . . . then its side flaps. Then two automatic retractable anvil stapling heads lower to the carton top and drive staples at predetermined positions along the center slot. After staples are driven, anvils are retracted and carton proceeds to the main conveyor system. The unit is air operated and will staple from 800 to 1000 cartons per hour.

Circle 188 on Reader Service Card for more information

Insulated Corrugated Box

Perishable drugs need protection not only from shipping hazards, but from potency-robbing changes in temperature. Hinde & Dauch Paper Co. has developed these boxes, called Insulpak boxes, to meet that type of situation. Eight corrugated boxes, each containing the perishable drug are packed in an inner box which slips into a master corrugated special container with 8-ply Thermocraft. A special container holds dry ice which maintains an even temperature inside the box.

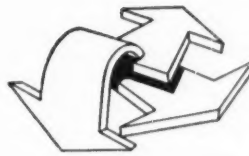
Circle 189 on Reader Service Card for more information

Air-Operated Tape Dispenser

An air-automatic pressure sensitive tape dispenser has been introduced by Derby Sealers, Inc., under the name "Grip-A-Tab." The air op-

(Continued on page 148)

IMPACT-O-GRAPH



3-PLANE IMPACT RECORDER

Impacts, jolts and vibrations can prove very costly as every shipper knows. In order to correct these damaging conditions, the causes of them must first be determined.

The Impact-O-Graph is designed to do just that. It records, on tape, the time, the severity and the direction of any impact.

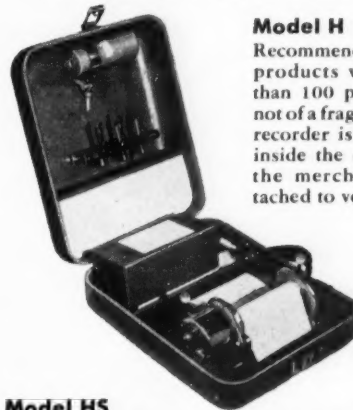
Ask for full information on the only impact recorder with all these features:

- Self-contained • Small in size
- Light in weight • Silent operation*

*Some models . . . 28 day continuous

Impact-O-Graph is now in service with many leading Industries, Carriers, Shippers, Laboratories and branches of the U. S. Government.

A MODEL FOR EVERY PURPOSE

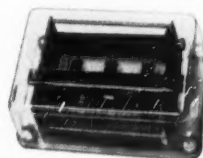


Model H

Recommended for use with products weighing less than 100 pounds that are not of a fragile nature. This recorder is usually placed inside the container with the merchandise or attached to vehicle.

Model HS

Similar to model H but with a styli sensitivity suited to merchandise weighing over 100 pounds. This model is also used to determine the riding qualities of trucks and trailers and materials handling equipment. Model R is similar but is designed primarily for use in freight cars.



Model HXS

This and similar models do not utilize a motor driven tape and are sometimes referred to as one-shock recorders. Most often used to evaluate cushioning materials for sensitive products.

Desirable, exclusive territories open for Sales Representatives. Write for further details.

THE IMPACT-O-GRAPH CORPORATION

1900 Euclid Ave. • Cleveland 15, Ohio

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CORRECT CONTAINER . . .

(Continued from page 107)

Greaseproof paper, glassine or resin treatments prepare fiber drums for shipment of products requiring greaseproof protection. For liquids, drums may be built to withstand normal transportation without leakage either by inserting a plastic bag such as polyethylene or by altering the usual method of construction to meet special requirements.

Don't Just Buy "Barrels"

If the container to be used for your packaged product is to be a barrel, don't just write out an order for a quantity of barrels. Be specific. There is considerably more to these containers than is at first apparent.

Barrels and kegs, varying in size from one to sixty gallons capacity, are generally divided into two main categories: slack barrels, and tight barrels. Slack barrels are for the shipment and storage of

powders, semi-solids, and solids. Tight barrels are best used for liquids, many semi-solids, and heavy solids.

In ordering barrels, specify the type of product to be packed, where it will be shipped, how long it will be in storage, and all other pertinent data. Keep in mind that some products require special precautions, and a barrel of the wrong wood, an unlined barrel, or a barrel with the wrong lining could prove unsatisfactory. For example: food products should not usually be shipped in barrels made of pine, since that wood imparts a foreign taste to the contents. Powdered materials go best in a tongue-and-groove type slack barrel which protects against sifting.

Nailed Wooden Boxes

The rectangular shape and rigidity of nailed wooden boxes and crates make them safe, efficient containers for a great number of applications. Properly selected and used, they permit solid and secure shipping and pallet patterns and maximum utilization of all available shipping space.

Three basic classifications of nailed wooden containers are: nailed and lock-corner wooden boxes; open crates; sheathed crates. They are available in an infinite number of sizes and through refinements in thicknesses or parts, they may be designed to give practically any degree of product protection. They may be purchased by

FOR GREATER PLANT EFFICIENCY use B-G Tight Corner Collapsible Pallet Boxes

- ECONOMICAL IN COST
- MORE CONVENIENT
- FULLY ASSEMBLED—
SHIPPED IN TWO PIECES
- COLLAPSIBLE—
STORED FLAT
- BETTER PLANT
ARRANGEMENT
- HANDLES WEIGHTS
UP TO 5000 LBS.
- BUILT TO YOUR
INDIVIDUAL
REQUIREMENTS

30 YEARS EXPERIENCE

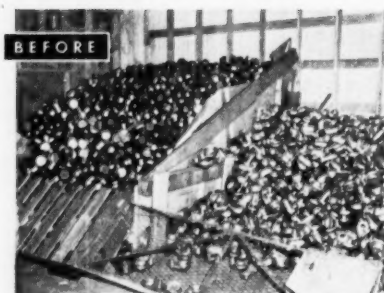
Bigelow-Garvey's 30 years experience in packaging engineering assure you the proper container for your particular needs.

Let your shipping problems—whether for defense or civilian use—be ours.



MILLS: ARKANSAS GEORGIA WISCONSIN MINNESOTA ILLINOIS

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General Office and Laboratory
326 W. HURON STREET • CHICAGO 10, ILLINOIS



Bulk Storage of Air-Cleaner Parts for Tractor Carburetors.



Model A Collapsible Pallet Boxes stacked in same area as shown at top develops 35% storage increase.

Made in 3 styles, Models A, B and C, the latter two having front openings for convenient accessibility to materials without removing upper tiers.



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users in the form of shook (knocked-down) or set-up form. Similarly, crates may be furnished in unitized panel or set-up form.

The first step in determining box specifications is to analyze the characteristics of the item being packaged. Physical properties of loads, including weight, size, fragility, shape and capacity for supporting the container are the first factors influencing proper shipping box specifications.

Probably the easiest way to select wooden containers is through use of rules and specifications published by the National Wooden Box Association. The rules indicate proper thickness of parts and correct nail sizes for use in fabricating boxes for practically any set of factors.

Essential information which should accompany your orders for nailed wooden containers, or which you should have available when consulting box and crate manufacturers is as follows:

1. Complete description of the items to be packed including:
 - a. Weight of items.
 - b. Dimensions of items.
 - c. Identification of load bearing points of product . . . approximate center of gravity . . . points where inside blocking and bracing can safely make contact.
 - d. Any special characteristics such as fragility.
 - e. Required degree of protection from weather etc.
2. Total number of products to be shipped and number to be packed in each container.
3. Are boxes needed in set-up or in shook form. If crates are to be used, are they needed in set-up or unitized panel form.
4. What markings are required on the container parts.
5. Is container for domestic or export shipment.

Wirebound Shipping Containers

The wirebound type of industrial shipping container is factory-made in accordance to particular specifications for each application.

It is, in effect, a tailor-made product . . . for shipping items varying from the most delicate instruments and fragile ceramics to heavy and bulky machinery, farm equipment, and automotive products.

The engineering principle underlying the wirebound shipping container is that relatively light wood reinforced with steel wires gives equal or greater strength and shock absorbence than heavier wood not so reinforced.

The container designer must

consider: size, shape, weight and general character of the object to be packed; whether packing can be integrated with assembling; how the packaged product is handled and shipped; how far it must travel to its destination and how many times and with what equipment it is to be handled en route. He also must know whether it is for domestic or export shipment; packing room space and facilities which are available; warehousing and storage requirements and fa-



**QUICKLY
EASILY
CLEANLY
ACCURATELY**

**PRINT
OR CODE
YOUR GUMTAPE
BY SIMPLY ADDING
"THE TAPE PRINTER"
TO YOUR PRESENT
EQUIPMENT**

"THE TAPE PRINTER"

A quick method of marking to identify contents or for general advertising uses on YOUR OWN GUM TAPE . . . Fast, Effective. Prints as you use your machine for all shipping packages. Ideal for all types of business. Now being used by a host of leading concerns everywhere. A time, money and labor saver.

There is a Tape Printer to fit any 3" standard automatic machine . . . with models available for quick change of copy for coding, identifying, dating, etc.

Complete with permanent copy

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Mechanically Simple

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Engineered for Long Hard Use

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Eliminates Need for Large Inventory

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Codes and Padlocks Contents

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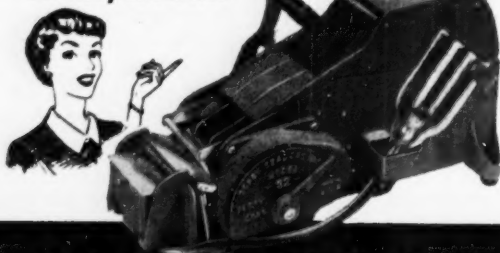
Prints up to 12" of copy

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Quick Changeable Type

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**Easy to use . . . Easy to clean
... Easy to service**



**DERBY
SEALER**

**MODEL 32
GUMMED TAPE
DISPENSER**

For Shipping Room and Production Line Packaging

● Rugged simplicity aptly describes the Model 32. Derby's exclusive, one-piece solid casting eliminates parts and provides added rigidity. What's more, the Model 32 is easy to clean, even during the hot summer months when machines tend to "gum-up."

● The Derby Model 32 accommodates any tape from 1" to 3" wide. Delivers from 4 inches to 34 inches of tape at one stroke.

● Derby's exclusive "moisture-control" system maintains a maximum high water level in the tank to assure a constant supply of water to the brush, no matter how fast tape is dispensed.

● Also available is the Model 32-T with tool steel shear-type blades for cutting reinforced strapping tapes. Blades have two cutting edges to double their useful life before resharpening.

For further information, write Dept. F

DERBY SEALERS, INC.
Derby, Connecticut



A. J. GERRARD & COMPANY

FLOW
of materials

→ INTO
YOUR PLANT

← AROUND
YOUR PLANT

→ OUT TO
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STRAPPING

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WAREHOUSES IN

NEWARK CLEVELAND LOS ANGELES
OAKLAND PORTLAND BIRMINGHAM

WIN A BOND

Big container-weight "guessing contest" at the Packaging and Handling Expo, Mechanics Bldg., Boston, Mass. Oct. 20-22.

BOOTH 403

U. S. Defense Bond awarded to "best weight guesser" of an American Wirebound and Nailed-Wood Container.

**SEE: New American
"King-Size"
Wirebounds**

First to package larger, heavier equipment for less.

**SEE: New American
Wirebound
"Bottle Case"**

First to handle bottles in lighter, lower-cost container.

**SEE: New American
Ideas, Methods**

First to solve many tricky handling and shipping container problems.

**THE American
BOX CO.**

1909 W. 3rd St., Cleveland 13, Ohio
Phone: SU 1-8200
Marion, South Carolina

CORRECT CONTAINER

Continued

cilities; how the package will be handled at the destination; will it be stored; stacked, or unpacked immediately; is protection against pilferage a major problem.

The engineer's goal in designing a wirebound container is to have one which has little tare weight and which does its job with as little interior packing as possible. The finished design should permit packing and unpacking without special tools and with a minimum of time.

Usually, wirebound containers consist of a one-piece mat and two ends (ends may also serve as top or bottom of container) which are nailed or inserted into place when the container is set up. Sometimes, the entire container is made in a single mat which incorporates all sides and both ends. These are designed to be assembled, ready for use, in less than one minute.

Precise mathematical formulae compiled by the Package Research Laboratory and the Wirebound Box Manufacturers Association are available to container engineers to help guide in the choice of proper types of wood, and the proper gauge of binding wires, the proper length, spacing and gauge of staples, the proper dimensions and thicknesses of face-boards, cleats, slats, and battens and the best way to combine them together to achieve a container that will provide the packing-for-shipment results sought.

Flow's Thanks to the following for photographs and assistance in preparing the preceding article: Auto-Nailer Co.; Bemis Brothers Bag Co.; Bigelow-Garvey Lumber Co.; Cargo Packers Special Products Co.; Container Laboratories Inc.; Fibre Box Association; Fibre Drum Manufacturers Assoc.; Food Machinery and Chemical Corp.; Robert Gair Co.; Gaylord Container Corp.; General Box Co.; Hinde & Dauch Paper Co.; International Paper Co.; National Wooden Box Association; Paper Shipping Sack Manufacturer's Assoc., Inc.; Sherman Paper Products Corp.; St. Regis Paper Co.; Wirebound Box Manufacturer's Assoc.

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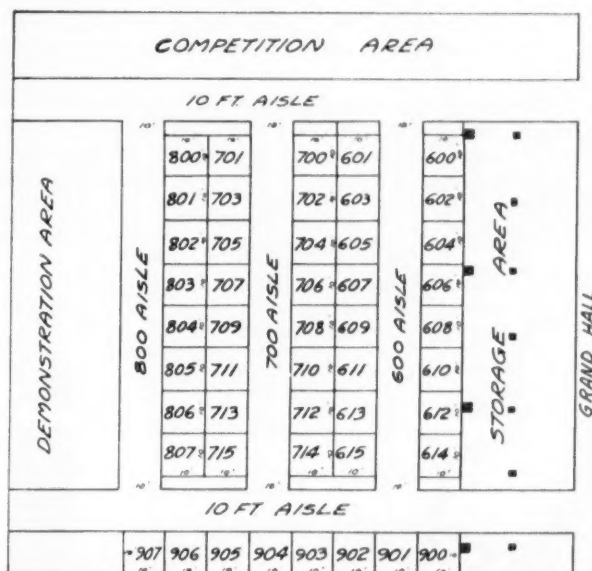
FLOW • OCTOBER, 1953

In its September issue, Flow published a list of exhibitors at the 8th National Packaging and Material Handling Exposition. At the time of publication, all exhibitors were within the confines of the Grand Hall of the Mechanics Building in Boston. Since then, the demand for space has been so great that an annex area has been utilized for new exhibitors. Floor plan of the annex is shown at right, and exhibitors as of Sept. 10 are listed below.

Exhibitor	Booth
Craig Machine, Inc.	614
Dade Brothers, Inc.	606
Derby Sealers, Inc.	700
Ernst Bischoff, Co., Inc.	902
Loomis Machine Co.	615
Melrose Packaging Industries, Ltd., Inc.	601, 603
Perry Packaging Corp.	600
Rheem Mfg. Co.	800, 801
Service Caster & Truck Corp.	807, 715
Union Bag & Paper Corp. ...	700, 703
United States Rubber Co. ...	900, 901

8th National Industrial Packaging and Material Handling Exposition adds . . .

Annex Exhibit Area



"HELP WANTED"

if your
cartons
come
to
your
customers
like



this **YOU NEED**
a **Counterboy** man!

Typical of Counterboy men at your service is O. K. Hill with 27 years' experience. Ken started in northern Illinois, worked in Cleveland, and in 1939 became manager in Chicago. He's a tape closure expert, his suggestions and recommendations are realistic and valuable.



There are 30 Better Packages' field experts — with a total of over 350 years of accumulative service to shippers in the U.S. and Canada.

These men can help you. Their "know-how" of shipping room procedure, materials and operations is at your service — with no obligation to you. Mail coupon for our helpful bulletins or call the nearest Better Packages' Agency listed in your phone book.

- Investigation shows that typical shippers usually:
- Fail to reactivate all glue on sealing tape;
- Fail to take advantage of special purpose tapes;
- Fail to tape correctly for maximum strength;
- Fail to conserve labor in handling tapes; and
- Fail to comply with Rules 41 and 38 in sealing cartons correctly.

Write for Free Technical Bulletins:

- **BETTER PACKAGES, INC.**
- Plant No. 1D, 253 Canal St., Shelton, Conn.
- ☐ #3 Tape Moistening Requirements for Various Carton Surfaces
- ☐ #5 Gummed Tape Glues and Adhesives
- ☐ #6 Sealing Carton Corners
- ☐ #7 Superiority of Gummed Tape Closure
- ☐ #9 Tape Applications—Building Strength from Weakness
- ☐ #12 Carton Sealing—The Easy Way
- ☐ #13 Parcel Post Wrap
- ☒ Have a Counterboy Man Call on Me!

COMPANY _____
SIGNED _____ TITLE _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

Better Packages, Inc.

WORLD'S LARGEST MANUFACTURERS OF TAPE DISPENSERS • SHELTON, CONN.

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BIRTH OF A PACKAGE...

(Continued from page 101)

tory to find the reason, and also to see if the packaged product could be given certification of the Safe Transit Committee. The company's own engineers accompanied the range and were present for all tests.

Several changes in the design of the product were discovered to be necessary, and as a result of them, a large number of range

bases which had already been produced had to be scrapped. A better design did result, however, and the packaged ranges are now able to pass the Safe Transit Test.

Another fine example of the close relationship existing between product design and packaging is one which occurred at Anaconda Wire & Cable Co. At that company, the adoption of an improved spool for winding fine magnet wire led to the development of a molded fibre container. The combination of the

two resulted in reduced damage, savings, and faster packing and unpacking.

Formerly, wood and metal spools which were relatively heavy and cumbersome were used for the magnet wire. Probably their main fault was their inability to sustain accuracy for any considerable period of time. Also, the old spools did not permit using the latest winding methods on high speed improved machines. Clearly, re-design was in order.

Finally, after considerable study, a spool was developed which incorporated accuracy, balance, strength and light weight with good appearance and durability and which could be repaired easily.

After development of the spool, it became apparent that a more desirable shipping container was essential. A molded fibre case weighing 1/3 as much as the old container and which requires only 1/3 as much storage space when empty was developed. With the old container, the magnet wire was susceptible to:

1. Bending or damage to the spools and flanges.
2. Damage to wire by spools hopping in transit.
3. Dirt, dampness or damage to wire from improper storage conditions in the plant.

Through the combination of product and container re-design, these advantages have resulted:

1. Damage to wire has been virtually eliminated.
2. Molded fibre case only weighs 1/3 of that replaced.
3. Container conforms to carrier requirements and commodity classifications.
4. No extra packing is required.
5. Magnet wire spools are easier to pack and unpack.
6. When open, molded cases may be used as trays for easy handling of spools in the work area.
7. When empty, case halves nest within each other.
8. Cases are returnable and reusable and may be palletized.
9. Lighter tare weight has led to sizable reductions in freight costs.
10. As a result of the closely controlled tare weight, it is possible for the first time to bulk-weight magnet wire.



Moving more goods...EASIER...
FASTER...is a specialty of
AMERICAN
Pressed-Steel Hand Trucks

Here's why

- **LIGHT-WEIGHT**—"Designed-In" balance—Big capacity insured by super-strong pressed-steel construction.
- **HIGH-SPEED**, tough, rigid, American Steelite® Wheels with the resilient rubber treads rolled on so they can't roll off.



- **LIFETIME CONSTRUCTION**—Parts damaged by accident or abuse quickly replaced with ordinary hand tools.

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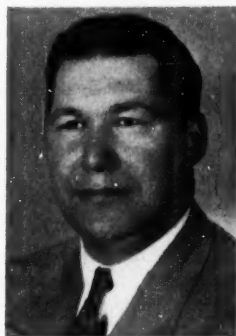
Firm Name

Address

City Zone State

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**chairman
of the
exhibitors'
committee**



J. H. Stoneking

Joseph H. Stoneking, advertising manager of the General Box Co., has been appointed chairman of the Exhibitors' Committee for the eighth annual Industrial Packaging and Material Handling Exposition. His duties will include: "policing" the exhibits to make sure that they conform to exposition rules, maintaining liaison between exhibitors and the show management, and otherwise serving to assure smooth functioning of the exposition.

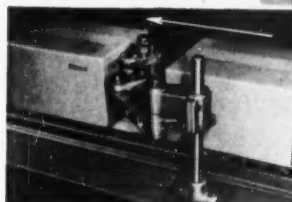
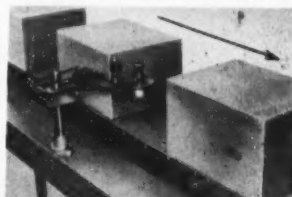
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**For quicker warehouse stacking, quicker identification
MARK ALL 4 SIDES OF CASES
AUTOMATICALLY... in a single pass**

New ROLACODER units attach to conveyor or sealer... imprint code-dates, lot numbers on all 4 panels of cases simultaneously... without requiring cases to be turned.

**ROLACODER
500**

imprints front and one side panel simultaneously



**ROLACODER
200**

imprints rear and other side panel simultaneously

Descriptive literature sent on request

See these remarkable new case-markers in
BOOTH 113
INDUSTRIAL PACKAGING and MATERIALS HANDLING SHOW
Boston - Oct. 20-22

Gottsch

ADOLPH GOTTSCHO, INC.
Hillside 5, N. J.

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YEAR**

**SAFE PACKAGING for shipment
anywhere**
greaseproof • waterproof
ultra pliable • self sealing



GRADE "C" BARRIERS

Greaseproof, acid-free, moisture-proof, pliable, and self-sealable, to meet all requirements of specifications JAN-B-121 (Methods 1A-1 conforming wrap dip coat sealed; 1A-2 container overwrap dip coat sealed).

GREEN CORE Cloth Rap, Heavyweight

Heavy duty (Type 1). Manufactured expressly for packaging heavy and irregular-shaped items. Produced to meet Class 1 spec. (wax-coated on non-greaseproof side) and Class 2 (wax-coated both sides).

You're sure of complete protection for overseas shipments, full compliance with government packaging material specifications, when you specify Green Core Barrier Raps.

Packaging operations go faster, too. Green Core Barrier Raps are so pliable they quickly and easily conform to the most irregular shapes. No sealing tape is needed. Green Core Barrier Raps are self sealing.

GREEN CORE Cloth Rap, Lightweight

Medium duty (Type 2). Manufactured expressly for small items such as cams, gears, bearings, etc. Produced to meet Class 1 spec. (wax-coated on non-greaseproof side) and Class 2 (wax-coated both sides).

Write for free samples, test data, complete information.

LEADERS IN THEIR LINE

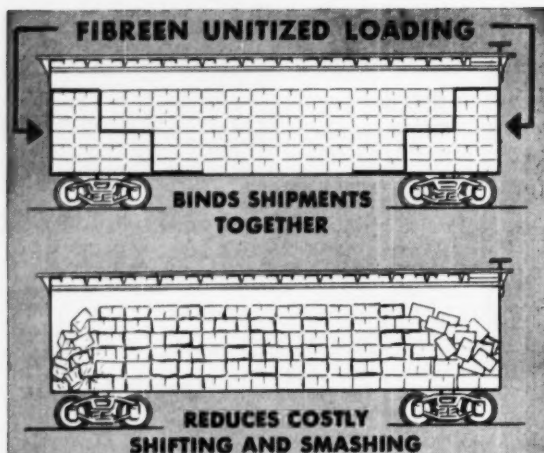
MID-STATES Gummed Paper Company
2511 S. DAMEN AVE., CHICAGO 8, ILLINOIS
New York • Boston • Philadelphia • Cleveland • Detroit • St. Louis • Atlanta • Los Angeles

Circle No. 94 on Reader Service Card for more information

STOP DAMAGE

WITH THIS TOUGH, LOW-COST

RETAINING PAPER



ON HUNDREDS OF SHIPMENTS
FIBREEN
 IS REDUCING DAMAGE CLAIMS
 60% TO 80%!

Waterproof, reenforced Fibreen—the toughest paper—holds shipments together as a unit, in spite of freight car jolting . . . humping and shunting.

Thousands of safe shipments are proof that unitizing loads with Fibreen is doing an outstanding job in preventing cartons, bags, etc. from being smashed in end-wells and voids.

Maybe it's the answer to your damage problems. Write to Dept. F-10 today for complete details on unitized loading and information on Fibreen for packaging.



The **SISALKRAFT Co.**
 Chicago 6, Ill.

New York 17, N. Y. San Francisco 5, Calif.

Circle No. 121 on Reader Service Card for more information

PACKAGING AND SHIPPING NEW EQUIPMENT . . .

(Continued from page 141)

eration principle is said by the company to increase taping output on production lines and to require less effort in use. An operator can grasp the tape without removing his eyes from the line, because the tape is delivered in precisely the same spot every time. It is available in two models; Model AF-92 for dispensing cellophane, acetate fibre, plastic, paper and electrical-grade tapes up to 5½ in. outside roll diameter and any width from ¼ to 1 in. or multiple rolls.; Model AF-85, dispenses the same materials as the first plus filament, cloth and heavy paper up to 6½ in. outside roll diameter. It can be loaded with tapes of any width from ¼ to 2 in. or multiple rolls and screw adjustments can be made for any length between 1½ to 9 in. With both models, multiple strokes provide longer lengths.

Circle 190 on Reader Service Card for more information

DON'T FORGET!

You can get complete information on all New Equipment if you use the Reader Service Card.

STOP WASTING MONEY!

GLUE-FAST METHOD SAVES MONEY 4 WAYS:

1. Use ungummed labels, can be part of billing form.
2. Low cost for equipment permits wider use.
3. Specific liquid glue increases efficiency and labeling quality.
4. No maintenance or mechanical parts to consume time.

If you haven't yet investigated the advantages of using the GLUE-FAST LABEL GLUER, here's your chance. Let us show you how, at little cost and NO RISK WHATEVER, you can make more money right in your own plant!

FREE 10-DAY TRIAL of GLUE-FAST GLUER shown with supply of recommended liquid glue. Purchase price only \$17.50 complete for 6" Model BX illustrated.

Clip your labels to company letterhead and indicate types of material to which applied for

Brochure on request

Glue+Fast EQUIPMENT CO., INC.

9-11 WHITE STREET • NEW YORK 13, N. Y. • WALKER 5-0542

Mfrs. of GLUE-FAST Label Gluers & Liquid Glues

Circle No. 20 on Reader Service Card for more information
FLOW • OCTOBER, 1953

PACKAGING & SHIPPING USEFUL LITERATURE

Lower-Cost Shipping:

Bostitch offers literature showing how you can save time and money in 12 important shipping room operations with Bostitch machines. More than 30 machines are illustrated and described.

Circle 193 on Reader Service Card

Gross Bagger:

Bulletin 5301, offered by Richardson Scale Company, pictures and describes the company's semi-automatic gross bagger. Besides design features, the bulletin discusses speeds, capacities and accuracies of the bagger. It describes the bagging operation, and lists complete specifications. Also included is a dimensional engineering drawing showing top and side views.

Circle 194 on Reader Service Card

Bag Machine:

Packaging Machinery Company offers a bulletin on its Shell-Pakit machine for bag making, weighing and filling. It can be used for bagging any free-flowing product, and will also form a double-laminated bag from printed cellophane in roll form.

Circle 256 on Reader Service Card

Nailing Machine:

The Auto-Nailer Company has published a manual of instructions and parts catalog on the Crusader Model Auto-Nailer. It contains valuable information required to operate the machine and to keep it in good running order.

Circle 257 on Reader Service Card

Container Marker:

Bulletin No. 304 from Barry-Wehmiller Machinery Company contains a complete description and engineering drawings of the Bruceway Marker for metal top glass containers and cans.

Circle 258 on Reader Service Card

Circle No. 67 on Reader Service Card.



New, faster marking system simplifies shipping!

Yes, put away non-permanent tags and labels, eliminate tacking, stapling, gluing of addresses. Simply apply MARSH stenciled marking directly onto your shipments. Bold, easy-to-read 1/2", 3/4" and 1" letters. With either electric or hand operated machines it's faster, and costs you less than complicated methods. Ask us for proof today.

For more information or a free demonstration mail us this ad with your name and business letterhead

MARSH STENCIL
MACHINE CO.
67 Marsh Bldg.
Belleville, Ill.

MARSH

FORCE

puts
marking
on the
assembly
line

**CONVEYOR
MARKING
ATTACHMENT**

Today's easiest way to print
code numbers or dates on
products . . . boxes . . .
cartons . . . packages . . .
containers. Available for in-
stallation on all kinds of
conveyor lines. Automatic,
self-inking, with instant-
change type. Write today
for Force Specification Sheet
and catalog.

WM. A. FORCE

216 NICHOLS AVENUE BROOKLYN 8 N.Y.

Circle No. 53 on Reader Service Card for more information
FLOW • OCTOBER, 1953

**HELPS YOU
MOVE MORE
TONAGE**

**Christensen's Easy Load
Transfer Plate**

These manually operated plates are a fixed installation. When not in use they rest flush within the floors; thus no floor space is lost. Four standard sizes have capacities from 3500 lbs. to 15,000 lbs. All models feature all-steel welded construction.

Write Today for Details of the Complete Line of Loading Ramps

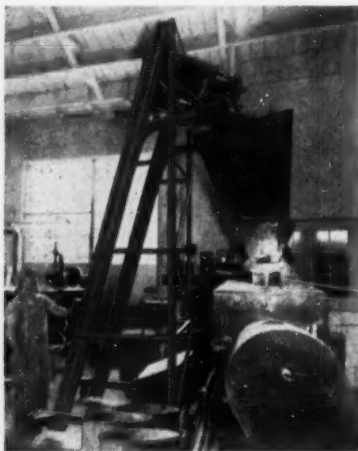
Wm. Christensen Co., Inc.
DEPT. F-53 • YORK, PENNSYLVANIA

Circle No. 31 on Reader Service Card for more information

—Advt—

NEW POWER HOIST LOADS BINS, VATS AND MIXERS

A new power hoist developed by Colson Equipment and Supply Co., Los Angeles, California, has recently excited favorable comment in the field of materials handling. This hoist called the "Cesco Dumper" upends and dumps bags, boxes, drums and barrels to load bins, vats and mixers. Food ingredients, ceramic materials, fertilizers, liquids, metal parts and other materials including waste, rub-



bish and broken glass are handled with equal efficiency. The company claims a labor savings up to 33 1/3% in the handling of food ingredients alone.

By eliminating manual lifting entirely, accidents among workers, due to muscular strains, hot splashing liquids and spilling corrosive acids have been substantially lowered. The following in quotes directs attention to the importance of this factor and a growing concern for loss of man hours due to the hazards of materials handling: "The National Safety Council gave top billing in 1949 to materials handling for causing a quarter of all temporary total disability accidents. Of these, 85% were caused by lifting."

Equipped with a variety of skips and loaders, the hoist moves on its own casters, locking in place with two floor locks. Push button control allows one operator to lift and dump items mechanically. With a lifting capacity of from 100 to 1500 lbs., the Cesco Dumper handles up to 100 loads or 150,000 lbs. per hour.

Complete information may be obtained by writing Colson Equipment and Supply Co., 1317 Willow St., Los Angeles, Calif. or the Cesco Dumper Division of Essex Conveyors, Inc., 165 Franklin Ave., Nutley 10, N. J.

Circle No. 35 on Reader Service Card.

150

Non-Staining Protective Wrap:

Literature from Thilmann Pulp & Paper Company describes the firm's duplex reinforced protective wrap with non-staining blond elastic laminant. Said to be flexible, strong and puncture-resistant, it was developed and manufactured specifically for the upholstered furniture industry.

Circle 195 on Reader Service Card

Coating Machines:

A brochure on Potdevin sheet coating and gluing machines has been published by Potdevin Machine Company. Several suggested plant layout diagrams are illustrated, showing the most efficient arrangements for high-speed coating operations.

Circle 196 on Reader Service Card

Label Printer:

Literature from Dennison Manufacturing Co. describes the Dennison Dial-Set System for printing identifying information on tags or labels. It prints a full line of alphabetical or numerical characters in predetermined positions on tags or labels.

Circle 197 on Reader Service Card

Self-Sealing Wrap:

Literature from Sherman Paper Products Corporation describes Spot-Seal wrap, a wrap that sticks only to itself and forms a tight, dust-proof package. Made of kraft paper laminated to a film of cohesive rubber, it seals itself around objects without sticking to them.

Circle 198 on Reader Service Card

"Pack to Attract":

"Pack to Attract" is a book published by The Hinde & Dauch Paper Company which suggests that creative packages have a function of product promotion as well as their primary function of product protection. Included are photos of modern, sales-winning boxes used by leading manufacturers.

Circle 199 on Reader Service Card

MADESCO

Heavy Duty Blocks

**PROTECT YOUR WIRE
ROPE INVESTMENT**



Longer life for your wire rope can be secured with Madesco sheaves properly machined for the size of rope used. Madesco sheaves and blocks equipped with anti-friction bearings and bronze bushings combined with quality workmanship assure smooth performance.

Special blocks for special needs made to order. A copy of our catalog is yours on request.



Over a quarter century of service
Circle No. 83 on Reader Service Card.
NOW • OCTOBER, 1953

Clark Celebrates 50th Year

AN INDUSTRIAL dump truck manufactured by the 50-year-old Clark Equipment Company for its own use was the send-off that started the company in the material-handling business.

This was during World War I. The company was turning out axles and wheels for the federal government. As a means of expediting production, Clark engineers built a fleet of three-wheeled dump trucks to haul heavy loads around their own plant.

One day a group of manufacturers visited the plant and ordered duplicate models. From that time on, Clark has been in the material handling business.

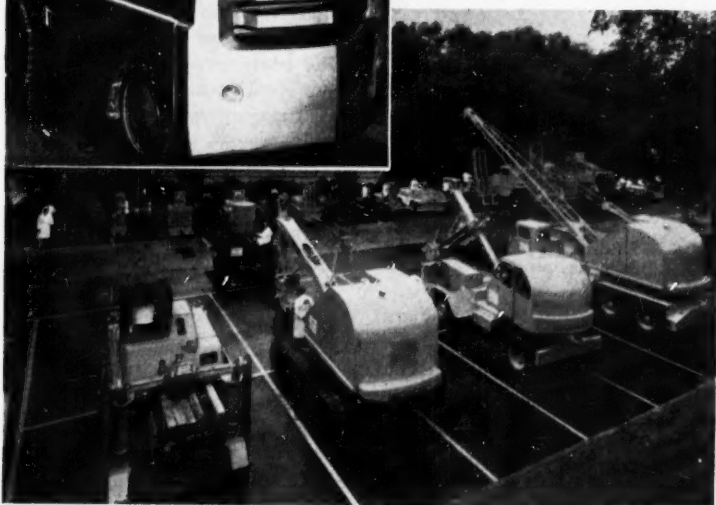
The company was started in Buchanan, Mich., by the late Eugene B. Clark in 1903, as the George E. Rich Manufacturing Company to manufacture cutting tools from tungsten steel. It had fewer than 20 employees.

Today it has 7,000 and a net worth of \$41,000,000. It has plants in Buchanan, Battle Creek, Jackson and Benton Harbor, Mich.

In August the company commemorated its 50th anniversary with a parade of its equipment at Buchanan. Included in the parade were approximately 40 different models of industrial material-handling trucks, including fork-lift trucks, towing tractors, powered hand-trucks and two lines of products recently acquired through the purchase of the Ross Carrier Company of Benton Harbor.



FORTY DIFFERENT models of Clark's material handling equipment, from powered hand trucks to huge straddle carriers, were in the company's parade at Buchanan (below). Clark's new experimental model fork truck also was shown (inset).



Towsley

INDUSTRIAL FLOOR TRUCKS

for every materials handling purpose

Conveyor type truck designed for motor terminal freight handling reduces time in dispatching and sorting. "All-Welded" body for strength and durability.



No. 843

A SPECIAL Towsley for a SPECIAL JOB

Step up your plant operation! Towsley Task Tailored Trucks accelerate handling of products of unique construction with trucks specifically designed for their mobility.

Towsley designs, engineers, builds trucks to your requirements, your specifications, your satisfaction.

Consult Towsley first!

FREE—write for

Bulletin 50 General Purpose Trucks
Bulletin 51 Special Purpose Trucks



No. 480

"Selector Truck" with removable tray, designed for use with overhead conveyor simplifies handling of parts in warehouse and supply depots.



TOWSLEY TRUCKS, Inc.

176 Elmore Street, Cincinnati 23, Ohio

Circle No. 131 on Reader Service Card

151

What's

NEW in useful FREE literature

The publications featured on these pages were written by experts. They are FREE publications. To obtain them use the postcard bound into this issue.

Truck For Narrow Aisles:

Three bulletins covering the "Transveyor Stacker," riding-type electric industrial truck especially designed for close-quarter narrow-aisle operation, are offered by Automatic Transportation Company. The 4-page brochures contain complete specifications for the 2000, 3000 and 4000-pound capacity trucks.

Circle 200 on Reader Service Card

Power Cranes & Shovels:

Released by Thew Shovel Company, a 12-page, two-color bulletin describes the Lorain "80" Series of power cranes and shovels. The bulletin covers design and construction features with many photos (some cutaway) of individual working parts.

Circle 201 on Reader Service Card

Tongs and Hooks:

Handling methods with Heppenstall tongs and "C" hooks are illustrated and described in a 24-page brochure published by Heppenstall Company. The tongs are shown lifting bales, barrels, boxes and warehouse racks, as well as a wide variety of products, including bars, slabs, ingots, die blocks, coils, artillery shells, locomotive wheel tires, tank hulls and turrets, and ingot molds.

Circle 202 on Reader Service Card

Flexible Doors:

Literature from Stic-Klip Manufacturing Co., Inc., describes the "Rubbair Door," flexible double-action doors which may be pushed

open by trucks passing through. As a truck strikes the doors, they bend on impact and absorb shock. Resilience of the doors is acquired through the use of neoprene-coated lightweight pads; which are said to retain their shape permanently.

Circle 203 on Reader Service Card

Crawler Crane Excavator:

Literature from Schield Bantam Company, designated as Bulletin C-100, describes the company's recently-introduced C-35 crawler crane excavator. The literature gives complete specifications and engineering data.

Circle 204 on Reader Service Card

Pallet Lifting Equipment:

American Matling Inc. offers a data sheet describing its pallet trucks, both low lift and high lift. An outstanding advantage of these trucks, according to the company, is their ability to turn a load in an aisle equal to the diagonal of the pallet load.

Circle 205 on Reader Service Card

Bandits On Your Payroll?

You may have bandits on your payroll, warns Towmotor Corporation in a cleverly-done brochure. The bandits, they point out, are such thieves as improper loading, improper lifting, improper unloading, improper storage, and others which are robbing industry of millions of dollars every year. The company goes on to explain how savings are possible with Towmotor trucks.

Circle 206 on Reader Service Card

Jib Cranes:

Bulletin C-102 from H. L. Bushman Company contains specifications and descriptive material on typical models of this company's jib cranes. Such features as self-aligning ball thrust bearings and sealed ball bearings are highlighted.

Circle 207 on Reader Service Card

Anchor Floor Plates:

Armco Drainage & Metal Products, Inc., has issued a 4-page illustrated folder on its Stelcon anchor floor plates. It lists such features as rugged construction, low maintenance, safety, more efficient handling, and economy of installation and use.

Circle 208 on Reader Service Card

Versatile Handling Truck:

Marvel Industries, Inc., describes its Liftomatic truck in a 4-page bulletin. The truck is designed and constructed to eliminate the use of hooks, special noses and additional manpower in moving containers with chimes. Containers 7 inches to 4½ feet high can be conveyed.

Circle 209 on Reader Service Card

Overhead System:

Bulletin 108 from The Forker Corporation tells the complete story of the Ohio Tramrail System, which is an overhead transportation system, attached to the ceiling or overhead structure. Specifications, drawings and photos of the various component parts are included.

Circle 210 on Reader Service Card

Revolving Head:

A revolving head attachment for Raymond electric trucks is announced in Bulletin 732-Y, available from The Raymond Corporation. Included are complete specifications for the attachment, which can be equipped on any standard 2000 or 3000 pound capacity straddle-type truck.

Circle 211 on Reader Service Card

Front End Loader:

Complete specifications for the Baker-Lull 4B front end loader mounted on various models of R. H. Sheppard industrial-type tractors are shown in a two-color catalog sheet available from Baker-Lull Corp. The literature is designated Form A5202-1.

Circle 212 on Reader Service Card

Aluminum Conveyor:

Speedways Conveyors, Inc., announces the availability of a bulletin on the Speedways aluminum gravity conveyor. The bulletin is complete with photos and detailed specifications of all standard models, and information for installation of the conveyor also is included.

Circle 213 on Reader Service Card

Compact Truck:

A compact truck which is said to be designed for more work per day is described in a catalog sheet from Erickson Power Lift Trucks, Inc. Complete specifications and engineering drawing of the 4000-pound fork truck are contained in the sheet.

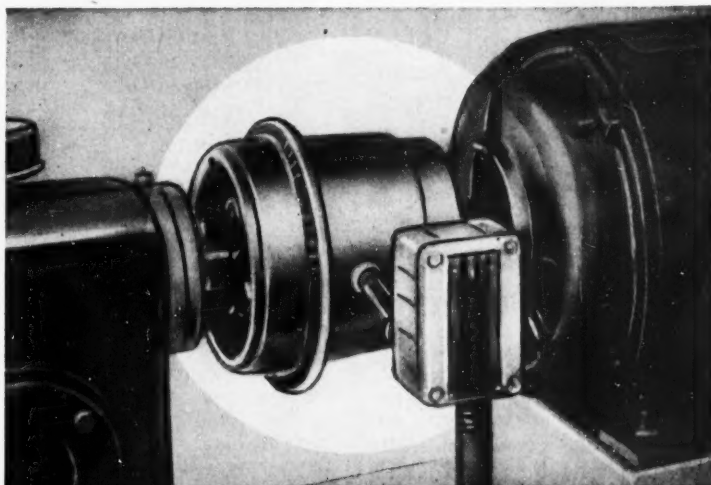
Circle 214 on Reader Service Card

Wheel Catalog:

Goddeyne Wheel Products offers a catalog which describes and illustrates the firm's complete line of industrial wheels. Pertinent information and specifications are provided, together with technical data on bearing styles and hub types available.

Circle 215 on Reader Service Card

Protect Your Machines Against OVERLOAD and "DOWN TIME"



ANCHOR-WALDRON *Automatic* Overload Cut Out

also available in Pulley Type Unit

With the Anchor-Waldron Cut-Out an automatic device instantly shuts off the motor when an overload occurs; it resets itself automatically. You simply push the starter button—that's all! If the overload has not been removed and the starter button is pushed the cut-out will again block the circuit and again reset itself.

This positive mechanical, electrical and controlled overload cut-out device is adaptable for a wide variation of horsepower. It protects horsepower, eliminates down-time and saves on maintenance work.

Coupling torque range 20 to 10,000 inch-pound.

Pulley type unit torque range 20 to 10,000 inch-pound.

WRITE FOR DESCRIPTIVE CATALOG 51

JOHN WALDRON CORP.

NEW BRUNSWICK

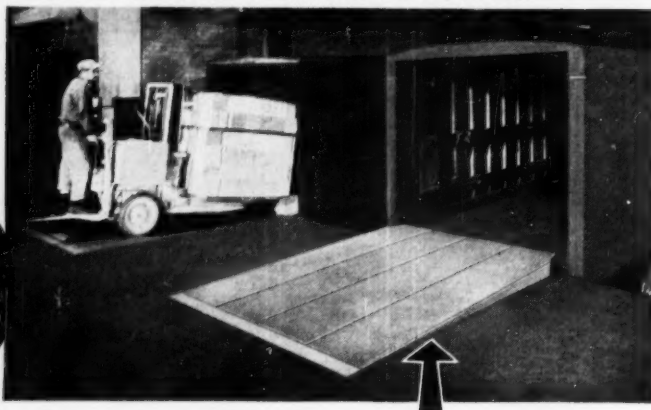
NEW JERSEY

Sales Representatives in Principal Cities

Circle No. 137 on Reader Service Card for more information

Circle No. 116 on Reader Service Card for more information

**FASTER,
SAFER
LOADING**



New adjustable hydraulic ramp for loading docks

The new Leva-Dock Ramp travels up or down automatically to keep on the level with vehicle bed. Thus you can quickly load and unload trucks and trailers without using loose plates, bridge ramps or other slow and dangerous methods. This hydraulic ramp compensates 4 ways for varying truck bed heights, out-of-level trucks and

spring deflection. A new automatic safety device prevents accidents and costly delays.

The Leva-Dock is powered by a dependable Rotary hydraulic jack and power unit. Rugged all-steel construction with 20,000 lb. capacity. Simple to install, inexpensive to operate—practically no maintenance.

WRITE FOR CATALOG RE-402

Rotary Leva-Dock Ramps®

Rotary Lift Co., 1047 Kentucky, Memphis 2, Tenn.

Pulpwood Handling By Shovel-Crane:

Publication of a booklet on pulpwood handling with shovel-crane has been announced by Link-Belt Speeder Corporation. The 16-page booklet is edited for executives and others concerned with pulpwood handling at mill-yards and in woodlands in all geographical areas. The booklet, No. 2413, is titled "How To Cut Costs, Speed Pulpwood Handling at the Mill—In Woodlands."

Circle 216 on Reader Service Card

Car Pullers:

A bulletin from Stephens-Adamson Mfg. Co. describes this company's line of car pullers. With these car pullers, says the company, one man can spot cars quickly and with little effort. Both capstan-type and drum-type are described, and the method for determining the proper size car puller is included.

Circle 217 on Reader Service Card

PREMIUM MATERIALS • CUSTOM DESIGN
SUPERB WORKMANSHIP

JAKES

America's Finest
Industrial Trucks and Trailers



MODEL 1225

JAKES FOUNDRY COMPANY

Established 1891

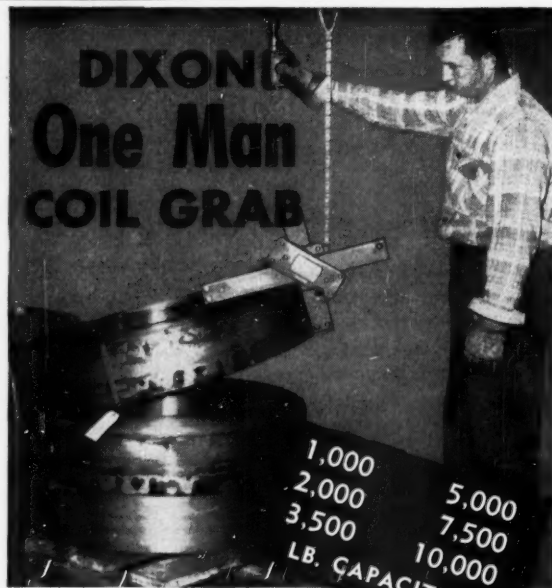
2800 Charlotte Avenue

Nashville 9, Tennessee

Circle No. 79 on Reader Service Card for more information

154

DIXON One Man COIL GRAB



1,000
2,000
3,500
5,000
7,500
10,000
LB. CAPACITIES

Automatically

ADJUSTS TO COIL SIZE

Seven standard models available to
handle coils from 1" to 48" wide.

Export Dept.: 306 W. Washington Blvd., Chicago 4, Ill.

DIXON Automatic Tool, Inc.

2304 23rd Ave. • ROCKFORD, ILLINOIS

Circle No. 43 on Reader Service Card for more information

FLOW • OCTOBER, 1953

Gasoline Platform Truck:

A two-wheel drive, four-wheel steer low-lift platform truck is described in a two-color folder issued by Elwell-Parker Electric Company. The truck, Type GEP-6, is gasoline powered. Specifications, engineering drawings, operating and construction features, and application photos are included.

Circle 218 on Reader Service Card

Unique Transmission:

Engineering features, including the unique power transmission and fluid coupling, in a new 4000-pound capacity fork truck is described in a leaflet from the Mobilift Corporation.

Circle 219 on Reader Service Card

Electronic Controls:

A complete revision of "Cutting Production Costs with Electronic Controls" is available from Photo-switch Incorporated. The 46 new case studies explain how standard packaged electronic controls have solved many problems of weighing, counting, measuring, timing and cycling.

Circle 220 on Reader Service Card

Job-Tailored Trucks:

Catalog 87 from Towsley Trucks, Inc., describes this company's industrial floor trucks which have been designed for the particular job they are to perform. The 26-page catalog lists complete specifications, photos and descriptions of the many models available.

Circle 221 on Reader Service Card

Packaged Drives:

Packaged adjustable-voltage drives for variable speed applications are covered in a 16-page booklet available from Westinghouse Electric Corporation. This booklet, B-5808, gives complete information about this drive, including construction and operation, typical applications, and the economics of operation.

Circle 222 on Reader Service Card

Profit from Maintenance:

A 4-page bulletin from John W. Hobbs Corporation tells how you can save money by protective maintenance with the help of the Hobbs engine hour meter. The engine hour meter tells when to check and service the many functional parts of powered equipment, and also provides a means of computing costs of specific jobs and keeping records of oil and fuel consumption.

Circle 223 on Reader Service Card

How Batteries Are Made:

An informative booklet from The Electric Storage Battery Company takes you on an inspection tour through the company's Engineering Research Laboratories and the recently-enlarged production facilities at the Crescentville Plant. You'll see how batteries are made, how research and design are carried out, and how the many departments work together to improve the company's products.

Circle 224 on Reader Service Card



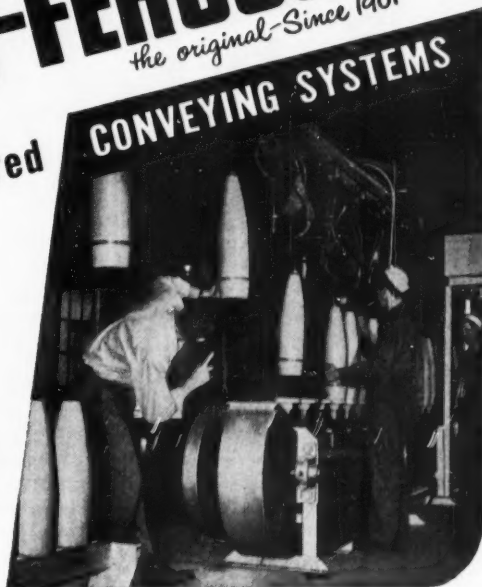
THE "HEART" OF CINCINNATI is famous Fountain Square. The pulsating "life blood" of the city, however, flows from its famous industries, which generation after generation have produced fine quality machine tools, pianos, ink, soap, radios, television sets and conveying systems—A-F Engineered Completely Co-ordinated Conveying Systems!

HOME OF
ALVEY-FERGUSON
the original—Since 1901
engineered CONVEYING SYSTEMS



YOU can SEE the
SUPERIORITY of
ALVEY-FERGUSON
Conveyor ENGINEERING

For a discussion of
latest efficient handling
methods write:



THE ALVEY-FERGUSON COMPANY



440 Disney Street, CINCINNATI 9, OHIO • OFFICES OR REPRESENTATIVES IN PRINCIPAL CITIES
Circle No. 5 on Reader Service Card for more information.

→ DOUBLE Your Battery Charging Capacity with a HERTNER Double Duty Unit ...



For complete information on the Double Duty Unit call in your nearest electric truck representative or write direct for Bulletin No. 201-R.

► The Double Duty Unit is an amazing accessory that actually doubles the battery charging capacity of a Hertner single circuit motor generator battery charger.

► It is an automatic control device that works in conjunction with an "HX" or "KX" Hertner charger for charging two truck batteries in sequence.

► It is so simple to use — just plug in both batteries, turn two switches, and from there on everything is automatic. When both batteries reach full charge the unit automatically shuts off and two battery-powered trucks are ready for the morning shift.

► The cost of a Double Duty Unit is only a fraction of the cost of a second battery charger, yet it will accomplish the same results as two chargers.

Specify a Double Duty Unit with the purchase of an "HX" or "KX" Hertner Chrg-O-Matic Battery Charger.



THE HERTNER ELECTRIC COMPANY
12690 ELMWOOD AVE. • CLEVELAND 11, OHIO
A General Precision Equipment Corporation Subsidiary
MOTORS • MOTOR-GENERATORS • GENERATOR SETS
Representatives in Principal Cities

Handling Cost Analysis:

A revised edition of "The HOW Book of Cost-Cutting Material Handling" is now available from the Yale Materials Handling Division, The Yale & Towne Manufacturing Company. Incorporating the latest methods for analyzing material handling operations in plants and warehouses, the 28-page book was prepared with the help of Dr. V. S. Karabasz, Associate Professor of Industrial Management, Wharton School, University of Pennsylvania.

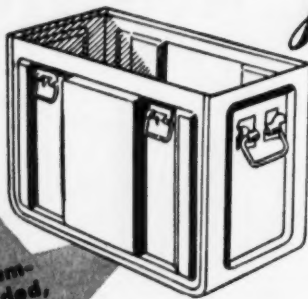
Circle 225 on Reader Service Card

Unique Wheel Conveyor:

An 8-page catalog from The Alvey-Ferguson Company describes the firm's "Live Rail" wheel conveyor system, said to be a new concept in low cost product movement. Complete specifications of the various wheel patterns are listed, as well as examples of some of the many combinations which are possible with the system.

Circle 226 on Reader Service Card

Steel SHOP and TOTE Boxes



Seam-welded,
oil and
water tight

ONLY
79¢
EACH*

*In 5000 lots, F.O.B.
Michigan City, Indiana

17½" long x 8" wide x 13" deep

(Inside Dimensions)

Stubborn insistence on "brand new" tote boxes may mean that you are paying for 4 boxes but getting only one. Thousands of manufacturers have been using these oil and water-tight steel boxes for years, at a great saving. You, too, can save! Just tell us how many you need. We'll give you the lowest prices.

BARNES and SMITH CORPORATION
6521-B W. State Street • Milwaukee 13, Wis.

Circle No. 166 on Reader Service Card for more information
156



... by leading
manufacturers

HOBBS ENGINE HOUR METERS are installed as original equipment by leading manufacturers of materials handling equipment ... and recommended as an approved accessory. A primary reason for this acceptance is the fact that the HOBBS ENGINE HOUR METER is not a revolution counter, but a true timing instrument that records hours and minutes of equipment operation. It takes the guesswork out of maintenance ... helps prevent breakdowns and prolong equipment life.

PROMPT DELIVERY! Order now from your factory branch, representative or distributor ... or send for Catalog 569 for COMPLETE INFORMATION.

ORIGINATED AND MANUFACTURED EXCLUSIVELY BY

John W. Hobbs Corporation
2061 YALE BLVD. SPRINGFIELD, ILLINOIS

Circle No. 71 on Reader Service Card for more information
FLOW • OCTOBER, 1953

Linked-Cable Conveyor:

A linked-cable trolley conveyor is described in literature from Cable-Link Corporation. Swaged-button ends of lengths of cable are recessed in halves of trolley brackets. When nuts are threaded on tapered "sleeves" of the brackets, the entire trolley assembly is immovable.

Circle 227 on Reader Service Card

New Slant on Handling:

A new slant on material handling is described in a Wayne Liftronics book which shows the application of various lifts with actual installation shots of loading dock ramps, loading dock truck lifts, cross-over bridges, straight platform lifts, industrial service lifts and other specialized types of lifts. Copies of the book are available from The Wayne Pump Company.

Circle 228 on Reader Service Card

Pneumatic Conveying:

Bulletin No. 104 from Convaair Corp. illustrates typical installations using the company's pneumatic conveying systems. Also illustrated are the basic components comprising the necessary equipment for practically all pneumatic conveying operations.

Circle 229 on Reader Service Card

Wax-Impregnated Belts:

Wax-impregnated belts for package conveyors are described in a 2-page bulletin released by Main Belting Company. These belts are said to remain flexible and moisture-resistant for the life of the belt.

Circle 230 on Reader Service Card

Feeders & Conveyors:

Simplicity Engineering Company announces publication of a 28-page illustrated catalog describing their complete line of screens, feeders and conveyors. It contains detailed information and illustrations.

Circle 231 on Reader Service Card

Low Cost Car Handling:

Improved operational features of the Trackmobile Model 2TM and how they help users achieve lower cost freight car handling are presented in a bulletin, "Solve Your Car Handling Problems," published by Whiting Corporation. In addition to picturing the gasoline-powered switcher's "road to track" flexibility, the bulletin, No. T-112, spotlights such Trackmobile advantages as electric sanders, improved road wheel drive and

steering and increased chain drive power for a maximum draw-bar pull of 8400 pounds. Also included are complete specifications, performance and dimension tables.

Circle 232 on Reader Service Card

Sprockets and Chain:

The person who selects, specifies or buys roller chain and sprockets probably will find all the data required in a 24-page bulletin available from Dodge Manufacturing Corporation.

Circle 233 on Reader Service Card

SAVE THE MAN IN MANUAL LABOR WITH



Wayne LIFTS

SPEED PRODUCTION... SAVE LABOR ... CUT HANDLING COSTS

Loading or unloading, just back up the truck . . . push the button . . . and the Wayne Loading Dock Ramp is adjusted to the correct height. Hand or industrial trucks roll on easily. No chain lifts, pry bars or costly manual lifting operations necessary.

From coast to coast Wayne is cutting loading time as much as 75% with Loading Dock Ramps saving miles of round-about hauling with cross-over bridges . . . speeding up inventory stocking with platform lifts. Wayne Lifts include ramps, side-walk elevators, materials lifts, cross-over bridges, service lifts and others. Each custom-engineered to meet your plant's particular needs. Write today for the new folder on "LIFTronics . . . science of materials handling."

THE WAYNE PUMP CO.
Salisbury Maryland • Toronto Canada



Wayne
NATION WIDE SERVICE

WAYNE LIFT DIVISION.

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Trojan TRACTOR FOR POWER TRAVEL

and
walk
along
with
the load



Write for Bulletin #10.

With a simple, draw-bar attachment, the Trojan quickly converts slow, hand-travelled hoists, small cranes, and other material handling units to fast, power-travel. Save time and effort; speed up production.

DETROIT HOIST & MACHINE CO.

48th Year—Designers & Manufacturers
Hoists and Cranes Since 1905

8239 Marrow St., Detroit 11, Mich.

PACKAGE INTERIOR . . .

(Continued from page 111)

Compression Set and Recovery

Cushioning materials must be resilient to provide continued protection against the many handlings and shocks received in transit. As most available materials are not completely elastic, they lose height when under a continued load. This condition is termed "set". When the load is removed, the height of the cushioning will be less than it was originally. However, once the load has been removed, the material will continue to regain its height, a phenomenon termed "recovery". Therefore, any height measurement after a load has been removed from cushioning must take into consideration the elapsed time between load removal and measurement.

"Permanent set" is the height loss which remains after recovery has reached its end point, and re-

sults from internal damage or dislocation of the material.

An understanding of set is important since it is a factor which results in a change in the dimension of the cushioning, thereby introducing unfilled space that permits the product to move freely or rattle in the package, and result in greater accelerations during handling and vibrations in transit.

Check the following properties of all cushioning material which you might consider for use in the package for your product:

1. **Compression**—Select the cushioning material with correct compression by considering such factors as weight, strength and surface area of the product and the size of the container as it limits the space for cushioning.
2. **Compression Set**—It is desirable to use a cushioning material with compression set characteristics which are at a minimum. This property can be checked for each packag-

THE MODERN **KARRI-GO** FRONT-BOOM MOBILE CRANE DELIVERS ALL THE LOADS

HYDRAULIC POWER TOPPING affords amazing flexibility. Operator can bring load close in to bumper for traveling . . . or negotiate low, low shop doors . . . with maximum load on the hook!

Lift . . . Transport . . . and Place Loads, indoors and outdoors. Load and Unload freight cars, trucks, trailers . . . Stack and Tier for Storage . . . speed Maintenance, Repairs, Construction. **KARRI-GO**—the modern front-boom Crane — SAVES MANPOWER, TIME, MONEY. Write for Bulletin #73B.



5 and 7½ tons cap. Gas or Diesel, pneumatic or solid rubber tires.



Automatic Power Topping permits Operator to RAISE and LOWER boom WITH LOAD ON HOOK. Recommended where there is need for frequent Boom Reach and Height Adjustment.

Pioneer Mfrs. of Heavy-Duty Materials-Handling Equipment . . .
KRANE KAR Swing-Boom Mobile Cranes . . . **LIFTRUK** Fork Trucks
...CRANES for Motor Trucks...famous "Silent Hoist" CAR PULLERS.

SILENT HOIST & CRANE CO.

888 63rd STREET, BROOKLYN 20, N. Y.

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MIDWEST INDUSTRIAL CASTERS

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FORGED STEEL CASTERS

Like all Midwest casters, the 62 Series is designed right and built right. It's rugged, smooth and low in cost. Widely used for medium duty material handling trucks, racks, etc.

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MIDWEST
PRECISION CORPORATION

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ing material under consideration according to standards outlined in Federal Cushioning Specifications.

3. **Efficiency**—This property is the proportion of energy absorbed for a stated load and deflection (compression). It tells the difference between the load-deflection curve shapes of two materials similar in all other respects.
4. **Density**—Provides indication of amount of weight added to the total package for a given volume. It is not a measure of compression or cushioning power of a material.
5. **Dusting**—The occurrence of small particles resulting from severe flexing or vibrating of the cushioning material. Such particles can contaminate or interfere with the mechanical operation of a product.
6. **Corrosiveness**—Cushioning materials sometimes contain chemicals which release corrosive solutions when in contact with moisture. Use these with proper precautions.
7. **Effect of Moisture**—Since packages are to be expected to pass through varying atmospheric conditions, be sure to study the effects of high humidity on the cushioning materials you are considering.

Blocking, Bracing and Dividers

Just as with cushioning, the primary functions of any bracing within a package are to absorb, transform and distribute shocks and to prevent chafing or abrasion.

Interior blocking and bracing should always be located to take maximum advantage of crate design and the inherent strength of the product. When using nailed wooden and wirebound boxes and crates it is desirable wherever possible, to bolt the contents to heavy members of the base.

Heavy articles such as machinery, require the use of blocking to prevent movement within the container. Blocks or braces employed in this manner are often shaped to fit the contour of the part at the

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The "LIGHT" TRUCK for that HEAVY LOAD



850 lb.
capacity

Shipping
weight
45 lbs.

DICO MODEL 65R

Here's the type of hand truck that your customers have been looking for . . . a "light" all-steel truck that is built to take those heavy loads! Heavy gauge steel box-type side shafts for maximum strength. Scientifically designed and balanced for tipping heavy loads. Equipped with easy rolling DICO molded-on rubber tired, roller bearing wheels. See your jobber or write.

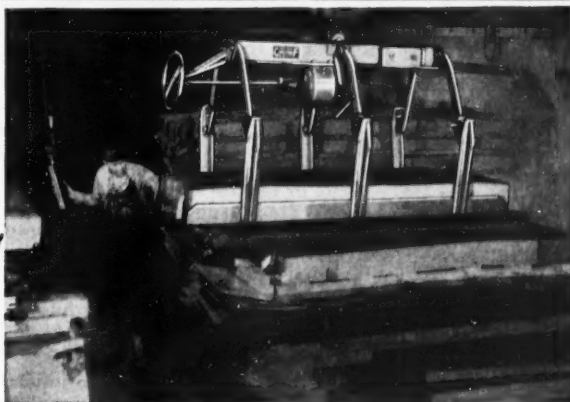
DICO

DES MOINES 5, IOWA

*One
man*

and

a C-F Lifter...



One man and a C-F Lifter handle the sheet steel stock in and out of storage in this plant with ease, speed and economy. C-F Lifters can pick up, carry and unload more loads per hour using less man and crane time than any other method. Note how closely a C-F Lifter piles sheets—this results in great savings in storage space. Jaw adjustments for carrying different widths of sheets are made in a few seconds by the operator—an important feature when varying sizes of stock are used.

C-F Lifters are made in sizes to handle from 2 to 60 tons in standard and semi-special designs.

Write for the bulletin "C-F Lifters." It illustrates the many cost saving advantages of these lifters.

CULLEN-FRIESTEDT CO.
1300 S. Kilbourn Ave., Chicago 23, Ill.

**HANDLE SHEETS
with
C-F LIFTERS**

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GOES PLACES IN NARROW SPACES—

Revolver Go-Getter Powered Hand Truck permits maximum use of storage or productive areas. The compact model shown above is a Hi-Straddle Lift with fingertip control—fully automatic 200° turning arc—slight operator training. Let us know your problem and we'll help you solve it. Phone or write Revolver Co., 8739 Tonnele Ave., North Bergen, N. J., UNION 3-8120.

PACKAGE INTERIOR

Continued

point of contact. They should be so positioned as to localize the stresses at the points where the article is best able to withstand them.

In determining the best interior packing for a corrugated container, a packaging engineer must consider: 1. the type of protection required; 2. the bracing material which provides enough strength and cushioning at the proper points; 3. material which does the required job with as little waste as possible. Die cut sheets make possible bracing at almost any point, no matter how intricate the product. If heavy products are to be enclosed however, die-cut sheets might not provide the strength required. It might then be necessary to install built-up pads made up of layers of corrugated board. This method will usually require the use of an excessive amount of material. It is not uncommon to find

relatively standard corrugated dividers or inserts being used in conjunction with special die cuts, built-ups, etc., to give as much strength as is required at a minimum of cost.

Protection Against Corrosion

In addition to the protection given by proper interior blocking, bracing and cushioning, it is also often necessary to prepare a package to withstand corrosive atmospheres and the action of fungi and similar living organisms. For such conditions there are a variety of types of contact preservatives, flexible barriers, strippable compounds, and dessicants.

Basically, there are three types of flexible barriers, water proof, moisture-vapor proof, and grease proof. Water proof barriers are used primarily to keep out liquid water such as rain or road spray, but not necessarily to hold out water vapor which might be in the atmosphere. Construction is usually of layers of kraft paper laminated with cross-laid reinforcing

HANDLING BULK MATERIALS?

"TAKE IT UP A FLO-TUBE"



To fill 3 or more hoppers use gate-valves in Flo-Tube horizontally. Below, filling 2 hoppers with "Y" chute.

The spiral conveyor of steady, dependable service. Sturdy cast iron trough bolts together in 3 ft. sections, capped with steel plates for easy removal if ever necessary. Built to take the abuse of coal, yet with tolerances just right to handle materials from grain size to lump.

Hopper level maintained by "off-on" automatic switches. Exposed end for pick-up



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SPECIALISTS IN AUTOMATIC COAL FIRING,
HANDLING AND CONTROL EQUIPMENT
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ROLLAWAY SEMI-LIVE SKIDS AND JACKS

FEATURING THE **RE-NU TOP**

Steelbound Rollaway Skids combine the best features of bolted and welded designs. The frame supporting members are arc-welded, and the renewable hardwood deck is tightly clamped with steel bolts of extra tensile strength. Welded-in, heat-treated, steel connecting pin. Semi-steel rubber-tired or Flor-Savr wheels with Hyatt roller-bearings, heat-treated steel axles.



CAPACITIES:
1500, 2500, and 5000 POUNDS

YALE AND TOWNE ROLLAWAY JACKS are stocked at the Lanham Company's plant and are sold and shipped directly from Louisville for use with ROLLAWAY SKIDS.





SECTIONAL BINS RE-NU TOP SKID PLATFORMS SKID BOXES

THE LANHAM COMPANY

1401 S. 12th St., Louisville, Kentucky

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RANtote
"877"

withstands -
5,000 lb.
TORTURE TEST...

6 TIMES
stronger!

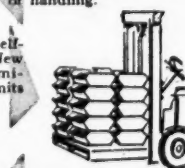
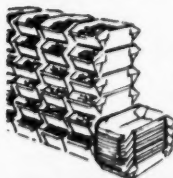
**THAN ANY OTHER
COMPARABLE TOTE BOX!**

Cut production costs! Use the new RANtote "877", designed to "take it" under heavy abuse. In gruelling laboratory high-compression tests, stacked RANtotes withstood 5,000 lbs. of pressure with no resultant damage! Proof to YOU that RANtotes last longer - cost less!

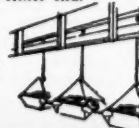
Check THESE Handling ADVANTAGES

Lightweight, reinforced construction - 10 lb weight facilitates calculation of tare and ease of handling.

RANtotes self-center, self-lock for safe transport. New hinged rail design eliminates "jamming," permits higher, safer stacking.



RANtotes nest when empty, stack when filled, with all parts visible and accessible from either end.



A natural for any conveyor. Eliminates parts transfer from one container to another.

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1041 W. 43rd Street, Chicago 12, Illinois

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fibres, imbedded in the adhesive. Water proof barriers make excellent liners for boxes and crates of all types and may be glued, taped, or stapled depending on the requirements brought about by the specific application. The essential ingredient of water-vapor proof barriers is aluminum foil, which even in the thickness of 1/1000-inch has a water vapor transmission rate so low as to be difficult to measure. Flexible plastic film is usually bonded onto one surface of the foil to permit heat sealing and at the same time to provide a seal over the pin holes which are bound to form in foil during the packaging operation. For greater strength and flexibility, cotton cloth backing is often laminated to the barrier.

Function of Barriers

The primary function of grease proof barriers is to act as a retainer for preservative oil or grease which has been used as a coating on a metal part.

Also available to protect against moisture, are foils, kraft papers, and combinations of both which have been treated with volatile corrosion inhibitors. When used as pouches or as liners for containers, they not only protect against entrance of excess moisture, but also prevent rust from occurring as a result of moisture already in the package.

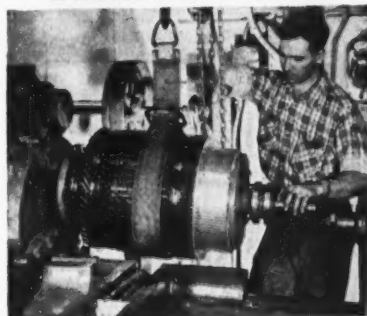
Dessicants and Humidity Indicators

Dessicants or drying agents should be placed into packages with products which require protection from moisture. The dessicant absorbs the water vapor in the air and thus reduces the relative humidity of the package to a safe level. Any water vapor which does diffuse into the package is also absorbed.

Excellent guides to the determining of the correct amount of dessicant to use are two formulas contained in Military Specification MIL-P-116B. They can be used in conjunction with two types of dehydrated packages. . . .

1. Rigid containers such as glass jars, metal cans and drums that are well sealed against infiltration of water-vapor by a rubber gasket or

**HE'S DOING
THE WORK OF
3 men
IN HALF THE
TIME with a**



GRIPPER WW* SLING

WW*-WOVEN WIRE, new all-purpose sling that's sweeping the materials handling market. Only Gripper Slings are made from **WOVEN WIRE**

Using Gripper Woven Wire slings for handling electric motor armatures through repair steps allowed an eastern motor repair shop to cut handling time in half, use only one man where two, sometimes three, were formerly needed! You'll get equal advantages from Gripper Woven Wire slings in your plant. Use them for heavy, bulky loads, sharp edged pieces, squares, flats or long members . . . all with equal ease, speed and . . .

GREATER SAFETY

Gripper slings will not snap suddenly. Broken wires will not stick out from the sling to cut workmen's hands. No kinking, tangling, snarling.

Use Gripper slings in basket or choke hitch depending upon the type of load. Once you've tried it, it'll be the most widely used materials handling tool in your plant.

Available in standard widths and any length . . . rated and tested for any lifting job. See your mill supply, materials handling or safety equipment distributor for full information . . . or write direct for **FREE ILLUSTRATED CATALOG** and price list.



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Dept. W • Cambridge 10, Md.

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No-Tip**

DUMP TRAILERS

**EASIER, FASTER,
SAFER HAULING!**



**No Tip-Overs—
Weight is Balanced
at Axles—
Not Above Them!**

**LOW CENTER
OF GRAVITY**

For both in-plant and yard work, move dirt, sand, trash, shavings, scrap, etc. the **SAFE** way... with Red-E Trailers. Specially designed for super-stability, simplest operation over any terrain. 1½ ton capacity, with 104" overall length, 41"-50" width hub-to-hub, 84" wheelbase. 4-wheel or 8-wheel models available, with pneumatic or zero-pressure tires. (Also with heavy-duty stake body.) Easy, safe 5th-wheel steering for sharpest turns; Fulton trailer hitches for 3-5 unit trains. Rugged, practical, safe—Red-E No-Tip Dump Trailers are engineered for all-around work. Adjusts to 14, 18, 24 or 32-inch height for easy loading!



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RED-E TRACTOR CO.
RICHFIELD, WIS.

PACKAGE INTERIOR

Continued

by hermetic sealing.

2. Packages other than rigid containers in which the package is protected from infiltration of atmospheric water-vapor by use of a sealed vapor-barrier material that completely surrounds the package.

These two formulas have been reproduced with this article.

Two types of humidity indicators currently available are indicator cards and "bulls-eye" indicators.

One type of card is actually made up of envelopes containing a dessicant which turns from blue to pink as the relative humidity increases from 20% to 60%. Each envelope contains a color chart and a transparent window permitting the color of the dessicant within the card to be compared with the chart to determine the relative humidity of the package.

Another type card comes with three or six spots which change from pink to blue or vice versa, with changes in relative humidity. On the three spot card, one spot changes color at 65% relative humidity, another changes at 40% and the last at 30%. The six-spot card is graduated from 10% to 60% relative humidity. Each spot has an accuracy of plus or minus 5% relative humidity.

The bulls-eye indicator consists of a glass cartridge filled with an indicating dessicant. The unit is equipped with gaskets and metal fittings which permit it to be fastened to a nipple welded to a container shell. It provides an easy means for determining the relative humidity inside a package without opening it.

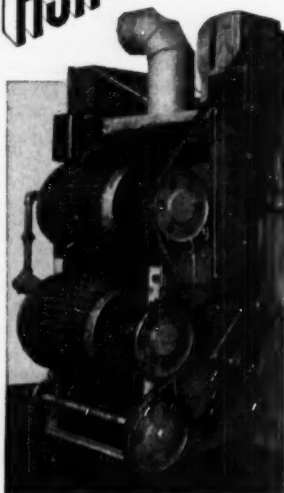
Flow's thanks to the following for their help in preparing this survey: Angier Sales Corp.; Blocksom & Co.; The Davison Chemical Corp.; Filtrol Corp.; The Gilman Brothers Co.; Impacto-Graph Corp.; Impact Register Co.; Kimberly-Clark Corp.; National Wooden Box Association; Plastic Film Corp.; Sherman Paper Products Corp.; Sponge Rubber Products Co.

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Pay Dirt

Sweep your floors the Parker Sweeper way and floor dirt becomes pay dirt. A Parker Sweeper is 400% faster than inefficient pushbrooms. It reduces "taken-for-granted" sweeping expenses by surprising amounts. Sweeps and collects in one operation. Easily pushed . . . easily emptied. Ideal for all businesses from small garage to large factory.

Full details in big descriptive bulletin. Write **PARKER SWEEPER COMPANY, 710 BECHTLE AVE., SPRINGFIELD, OHIO.**

PARKER FLOOR SWEEPERS

Manual and Motorized Models

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FLOW • OCTOBER, 1953

DOCK HANDLING . . .

(Continued from page 132)

plates since they can be surprisingly weak and are subject to extreme bending.

Bridge plates should be purchased to handle specific maximum loads with the idea in mind that future loads will be heavier and speed of movement faster than at the time of purchase. Attempting to be economical in bridge plate selection through purchase of a unit which suits present requirements, and no more, can hurt you in two ways. It can cost you the price of another plate in the future when volume and loads handled increase, and it can result in serious accidents if overloaded.

Length of a bridge plate is of extreme importance and will have an effect on the speed of rations as well as the safety. A bridge plate which is short may result in too steep a grade when the difference in height between dock and carrier is great.

Dock Levelers

An effective solution to the problem of transfer between dock and carrier is the use of powered dock leveling devices, or ramps. Positioned by the mere touching of a button or lever, powered ramps are fast acting and efficient on busy docks. They are available in a wide range of capacities.

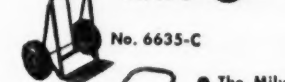
Dock leveling devices are installed permanently into docks so that when not in use, they are lowered flush to the dock to permit normal cross-traffic. Where dock space is at a premium and must be clear of obstructions at all times, dock levelers may be hinged to the edge of the dock to extend outward. They adjust for height in the same manner as do levelers mounted in the dock itself.

A new innovation of a similar type of equipment for docks where space both on the dock and in front of the dock is restricted, is a hydraulic leveling device which is set into the pavement in front of the dock. Instead of providing

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No. 2203-A

- The Milwaukee Line consists of 14 well designed, moderately priced models, including appliance carriers and Welding Trucks.
- Milwaukee Hand Trucks offer a choice of 3 handle types, open and closed nose plates and various types and sizes of wheel equipment to meet specific materials handling requirements.

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Learn why MILWAUKEE is the fastest growing line of Hand and Platform Trucks for factories, offices, stockrooms, warehouses, shipping rooms. Compare dollar-for-dollar values and you'll agree that Milwaukee offers you more.

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MILWAUKEE
Truck and Caster Corp.

6514 W. River Parkway, Milwaukee 13, Wisconsin

Gentlemen: Please send your Catalog M 123, prices and name of nearest distributor.

Name _____

Address _____

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CUT YOUR HANDLING COSTS!

With Osborn's Platform Skids and Bottomless Stacking Rings



Type L-2500#
Type M-3500#
Type H-5000#

Angle Iron Bound
Hardwood, Heavy
Bar Steel Formed
Logs
Replaceable Decks
Built for Hard
Usage with Min-
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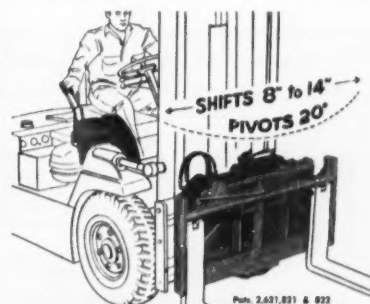
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ADD LIVELY
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VERSATILITY
TO YOUR LIFT TRUCK

- Eliminate all non-productive maneuvering
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UNITS AVAILABLE FROM 3,000 TO 15,000 LB. CAPACITY

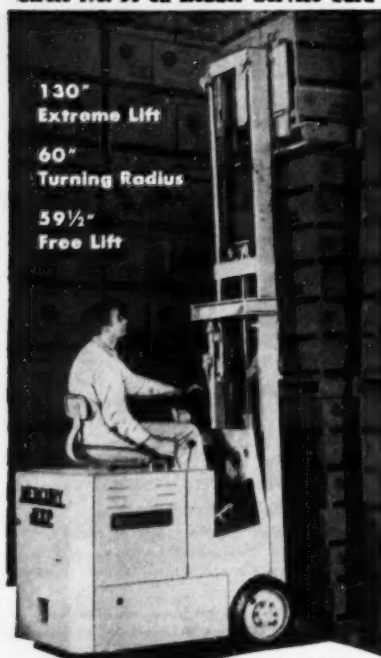
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130"
Extreme Lift
60"
Turning Radius
59½"
Free Lift

"JEEP" Model-230
2000 lb. capacity

Mercury

Send for catalog on complete line of
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4154 S. Halsted St., Chicago 9, Illinois

DOCK HANDLING

Continued

a bridge between carrier and dock, this equipment raises or lowers the vehicle itself to meet dock level accurately.

Conveyors for Vehicle Loading

Portable conveyors, either powered or gravity types, may be used to unload vehicles as well as to load them. Their value is greatest where a number of relatively uniform packages are moved between dock and carrier in a continuous flow. They may be mounted on casters for easy moving to wherever they are needed. Some conveyors are constructed so that they can be extended into vehicles to reach directly to the point of loading or unloading.

A New Development

One of the latest developments for solving the problem of loading

and unloading cars, trucks and trailers is the movable loading ramp. Made in several models, it is essentially, a 30-ft. long ramp which can be wheeled to any point in a yard. A raised end fits into the doorway of the vehicle, while the other end rests on the ground. In effect, it makes a loading dock out of any convenient cleared-off ground level area.

Product Protection in the Vehicle

Whether you use highly specialized cars or trucks, the function of which might be limited to one job, or whether you use cars designed for general merchandise, your goal should be one of utilizing vehicles to carry the greatest amount of freight to a given destination with a minimum of damage and at lowest cost.

Sound methods of accomplishing this end have been developed through use of permanent and semi-permanent types of bulkheading and specially designed cars. Manufacturers of strapping have cooperated in developing better

**WEIGH MATERIALS ON THE SPOT
SAVE UP TO 22% ON LABOR COSTS**

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Low-Cost

DILLON

Weight Indicator



Picking materials up, moving them to a scale, setting them down and then picking them up again means double handling and greatly increased operational costs. With the DILLON Weight Indicator, loads are checked on the spot the instant they are lifted. Accuracy is guaranteed to be within ONE division or less at any point on the dial. Adjustable for large tare loads. 16" dia. dial. Swivel hook. Accidental overload and shock protected. 8 capacities from 0-250 pounds up to 0-20,000

pounds. Portable—weather-proof—dust-proof. Each unit checked with certified dead weights. Extreme utility at LOW cost!

Write today for illustrated, descriptive literature

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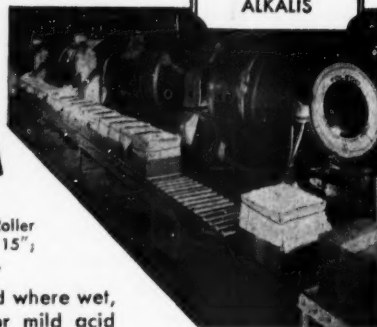
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METZGAR "NYLO-ROLL" CONVEYORS

Resist CORROSION

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INDUSTRIAL
ACIDS
BRINE, SALT
ALKALIS

NYLON
BEARINGS
ON
STAINLESS
STEEL
AXLES



Gravity, or Live Roller
Models. 11½"; 15";
18"; 24" widths.

Recommended where wet, alkali, salt, or mild acid conditions rapidly destroy ordinary ball bearings.

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Describe your needs

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MFGS. OF WHEEL & ROLLER GRAVITY &
LIVE ROLLER CONVEYORS • POWER BELT
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GRAND RAPIDS 4, MICH.

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FLOW • OCTOBER, 1953

ways of securing lading, as have makers of the various types of containers which can be used in packaging.

About 20 types of specially-equipped cars are available for shipping material safely. Many have been equipped with specific purposes in mind, but several have proven valuable to shippers of almost any type of product.

Special Equipment

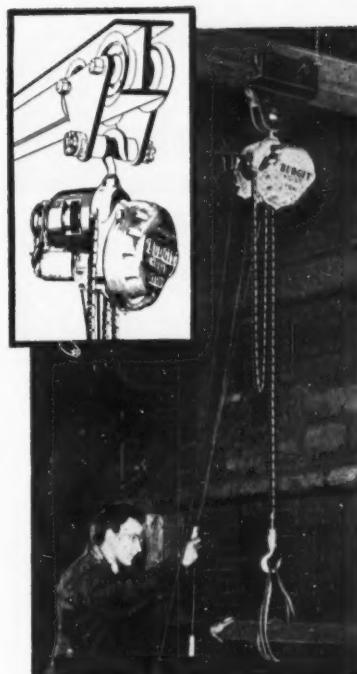
One specially equipped car has walls lined with perforated sheet steel from floor to roof. Double keyhole shaped perforations in the steel wall lining receive the end locking fittings of cross members which can be adjusted to lock against the lading to keep it from shifting while the car is in motion.

In a variation of that type, side walls of a car are equipped with three serrated-edge belts of steel equally spaced from floor to car roof. To these belts, specially designed vertical channel sections are held at any desired location. The cross-members that lock against

the lading are of wood construction and are held in place at any height in the vertical channels by a yoke tightened by a clamp nut at each vertical wall member. The doorway is provided with a special longitudinal member to permit the load to be extended through the doorway area when required.

Adjustable Compartments

A car incorporating three adjustable compartments provides another method of protecting lading. Two pairs of floor-to-roof gates, adjustably hinged to car walls can be locked against lading stowed at either end of the car. Then gates are locked in place firmly against the lading. The space between the two end compartments is then loaded. The three loaded compartments provide two desirable features: 1. They confine shifting within each compartment so that a cumulative reaction to impacts cannot run the entire length of the car; 2. They make it possible to separate shipments des-



HELPS MANPOWER CUT COSTS FOR YOU

The 'Budgit' Electric Hoist solves the problem wherever economy rules production. It is fast and powerful. In less than two seconds, a 200-pound load is lifted one foot by the smallest size 'Budgit'. One hand controls lifting and lowering action. The other is free to guide the load. No manual lifting. No lame backs. Such speed and safe operation help manpower boost daily production and reduce costs.

The 'Budgit' Electric Hoist is rugged, portable, uses little current. Installation is no problem at all. Just hang up, plug in, use. Save on every lift. No extras to buy—it's a complete hoisting unit that provides every safeguard for man, load, and hoist. Capacities: 250 to 4,000 pounds AC and DC models. Prices start at \$129. See your nearby "Shaw-Box" Distributor for details or write for Bulletin No. 391.

'BUDGIT' CONDUCTOR CORD TROLLEYS



keep flexible conductor cord up and out of the way while carrying electricity to monorail hoists. Roll smoothly around curves, through switches.



'Budgit'
ELECTRIC HOISTS

MANNING, MAXWELL & MOORE, INC.
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Builders of "Shaw-Box" and "Load Lifter" Cranes, "Budgit" and "Load Lifter" Hoists and other lifting specialties. Makers of "Ashcroft" Gauges, "Hancock" Valves, "Consolidated" Safety and Relief Valves, "American" Industrial Instruments, and Aircraft Products.

Circle No. 86 on Reader Service Card.

166



WISCONSIN- POWERED HEMCO-MOTIVE Switching Unit Moves 3 Cars at a Time!

Here's a practical "locomotive" for switching and spotting cars on your sidings — at a great saving in man-hours, plus increased safety and ever-ready convenience . . . at an operating cost of about 1 1/2 gals. of gasoline per hour!

A 25 hp. Model VF4 Wisconsin Heavy-Duty Air-Cooled Engine furnishes dependable power for all phases of HEMCO-MOTIVE operation . . . off-track mobility, climbing up and over the rails, operating the hydraulic lift that "couples" the unit to the car, and handling all switching and spotting maneuvers . . . delivering a 7400-lb. drawbar pull through 4-wheel drive, moving up to 3 loaded freight cars at a time, at a rail speed of 150 ft. per minute! Hemco Manufacturing Inc., Argonia, Kansas, is the builder. It's another typical Wisconsin Air-Cooled Engine original equipment application . . . again illustrating how these fine engines fit both the JOB and the MACHINE.



WISCONSIN MOTOR CORPORATION
World's Largest Builders of Heavy-Duty Air-Cooled Engines
MILWAUKEE 46, WISCONSIN

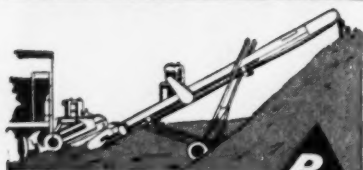
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one MAN



... with a **B-G**
Portable Conveyor
and a **B-G Car Unloader**
unloaded a car of coal in

45 MINUTES

see your B-G distributor
or write

Barber-Greene
AURORA, ILLINOIS, U. S. A.

DOCK HANDLING

Continued

tined for three different destinations.

An installation which can be built as an integral part of existing box cars consists of longitudinal wall angle belts (ordinarily eight to each side of the car) steel-reinforced wood cross members with adjustable end locking fittings and deckboards that can be used to segregate load segments or as flooring for second-tier loads when laid across the cross members. Wall belts run the length of the car and are spaced from floor to roof at eight or nine predetermined intervals. They are perforated to give half-inch interval adjustments.

Bulkheads

Adjustable bulkheads constructed of seamless steel tubing and cold drawn welded wire fabric can be used in cars and trucks to secure lading. They reduce damage by holding merchandise se-

curely in place when impacts occur. Two types of adjustable steel bulkheads are available.

1. Ratchet bulkheads utilize ratcheted arrangement to extend cleated plates outward from sides of bulkhead to grip sides of car or truck. They are adjustable to fit cars from 8 ft. 9 in. to 9 ft. 4 in. wide. They are also available in special sizes.

2. Telescoping bulkheads are constructed of bulkhead sections 8 ft. 4 inches wide and 4 ft. high. Telescoping end plates are nailed to sides of cars or trucks. Sections may be placed one on top of the other to completely barricade a section of a vehicle.

FLOW's thanks to the following companies for photographs and assistance they supplied in the preparation of this article:

Baker-Raulang Co., Industrial Truck Division; Bigelow-Garvey Co.; Bumpers Inc.; Evans Products Co.; Joyce-Cridland Co.; Lewis-Shepard Inc.; Magline Inc.; Magnesium Co. of America; Moad Board Sales, Inc.; The Moto-Truc Co.; Pittsburgh Steel Products Co.; Pullman-Standard Car Manufacturing Co.; The Rapids Standard Co. Inc.; Rowe Methods Inc.

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FLEXO-CRANE

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1 TON CAPY

For Handling of Loads Up to One Ton

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Bulletin F-120
Gives You All the Details
Write for It Now

ABELL-HOWE CO. 31 W. JACKSON BLVD.
CHICAGO 4, ILLINOIS

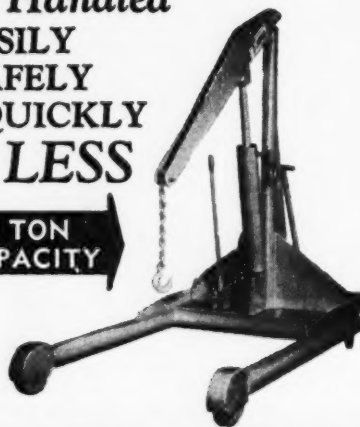
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BULKY, AWKWARD, HEAVY LOADS

Handled

- EASILY
 - SAFELY
 - QUICKLY
- for LESS**

**2 TON
CAPACITY**



SUBSTITUTE FOR AN ELEPHANT

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Gives all the facts about Ruger's complete line of hydraulic floor and truck mounted cranes, capacities 1000 to 6000 lbs.

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FLOW • OCTOBER, 1953

PACKAGING MACHINERY...

(Continued from page 114)

the use of a special type of package which may adversely affect the cost of materials. Various sizes or types of an article may require flexibility which will add to the final cost of a product.

As mechanization increases, one further factor must be considered. Any machine of an economical design can only operate on material within certain limitations. Control of these materials must be such that the machine will be operating within its range in order to assure proper performance of the unit and the quality of the final package.

One of the most important problems faced in the planning of a packaging operation is that of speed vs. flexibility of equipment. Present requirements for speed are: for items packaged in glass, 500 to 600 per min.; in paper (cartons, bags, etc.), 300; in flexible packages (the relatively new plastics) 18 to 60; and shipping cases, 15 to 25 per minute. It cannot be

over-emphasized that the question of speed cannot be considered without taking into consideration other factors such as price of the equipment, package design, maintenance and available space.

If you have a large continuous flow of a single style of pack, then speed becomes the important consideration. On the other hand, where flexibility is desired, the question of the extent of flexibility in relation to the cost of the machine and the soundness of the engineering design must be carefully balanced.

With flexibility, speed generally is sacrificed, certainly as far as overall production capacity is concerned. However, in many cases the small manufacturer has been packing manually and has reached a point where a machine can be justified if it provides sufficient flexibility.

Again, a large manufacturer may require a flexible machine because costs of floor areas will not permit him to put in more than a single unit which must be operated two or three shifts a day. Speed is

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RAZORBACK Brand is being purchased more and more by smart buyers!

RAZORBACK Brand means quality and workmanship!

RAZORBACK Brand means fewer repairs and lower maintenance costs!

RAZORBACK Brand are available heavy or light weight, nailed or bolted!

Arkansas Pallet Co.

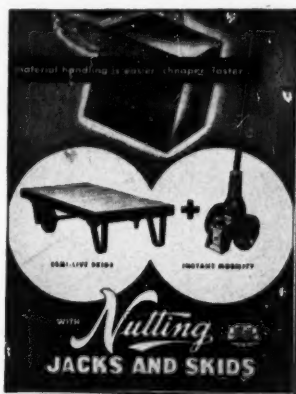
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PINE BLUFF, ARKANSAS



It's for You!

HOW TO

- ★ Save Time
- ★ Save Floor Space
- ★ Reduce Handling Costs



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On-the-job photos demonstrate the many advantages of the Nutting Jack and Skid System. It is easy and inexpensive to install—and is so flexible to varying plant layouts that there is scarcely a materials handling problem to which it cannot be profitably applied.

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GRAND FORK LIFT HAND TRUCK with VARILIFT



Electric Lift Stacker
Model 7158



Shop Caddy
Model 4036



Lift Stacker
6158

... the 4-Speed
Hydraulic System
that Fits Lifting
Speed to Load

The new Grand Lift Stacker is a man-saving hand truck which moves and lifts heavy loads smoothly and safely. For warehouse stacking, for loading and unloading trucks, for handling boxes, barrels, dies, totebins and hundreds of similar loads, the Lift Stacker is industry's most useful tool!

Lift Stackers are compact, easy rolling and may be used on low load limit floors. The sensational new Varilift speeds up handling of light loads and unloading operations by as much as 400%.

40 Grand models are available to meet practically any hand truck requirement with capacities up to 3000 lbs. and lifting heights to 98 inches in either manual or electric hydraulic lift types.

Your Grand distributor will gladly demonstrate in your plant.

Write or wire for complete information.



ALLIED MFG. & SALES CO.
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NOLAN ONE-MAN CAR DOOR OPENER



Opens Doors in 20 seconds or less!



The Nolan Car Door Opener gives one man a tremendous amount of pulling energy, to get the most stubborn, hard-rolling door wide open in a hurry! New chain has 2000 lbs. tensile strength.

No gangs needed. No mangled limbs or loss of life. A few quick pulls on anchor chain gets any door open in a jiffy. The NOLAN saves its low initial cost in first hour of operation.

New safety and efficiency features now make the Nolan 1-Man Car Door Opener a more necessary labor-saving money-saving help than ever before.

Many thousands in constant daily use!

Free Literature. Order one or more NOLAN Model-H Car Door Openers now. Catalog on request.

The NOLAN Co.,
118-G Pennsylvania St.
Beverly, Ohio

\$37.50

F.O.B. Bowerston

PACKAGING MACHINERY

Continued

then of secondary importance. Obviously, final selection of equipment for mechanical packaging can be made only after careful analysis by trained personnel.

An example of the flexibility which can be built into a machine can be found in the installation in a large electrical manufacturing plant. Here, various sizes of corrugated shipping cases are conveyed, accumulated, time-fed, glued and sealed. These cases are accumulated by category and successively conveyed to an electric power height and width gluer and sealer.

For the Future

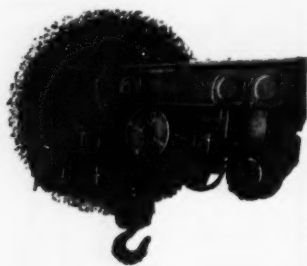
One of the most recent trends, one which has not yet been completely explored by industry, is the question of palletizing. Although large packages (shipping cases) are being palletized, the palletizing of smaller units, such as individual containers, is still in the experimental stage. Some trial

machines are under test which may considerably change present concepts of handling, conveying and storing these smaller units. The requirements of the Armed Services for unit-palletized loads for shipment to supply depots represent the necessity for further development of equipment to successfully produce this pack.

Accurate weighing and filling of products are also attracting greater attention since the avoidance of waste is an important and fertile field for economy and savings.

Automaticity is becoming increasingly important for all production units. The necessity of eliminating manual handling by conveying packing materials and products through various production stations to the end point of a finished packed unit ready for shipment has become of paramount importance.

Our thanks to following for photos used with the preceding article: J. L. Ferguson Co.; Hayssen Mfg. Co.; Island Equipment Co.; R. A. Jones & Co.; Karl Kiefer Machine Co.; Pneumatic Scale Corp.; Simplex Packaging Machinery Inc.; Standard Knapp Div., Emhart Mfg. Co.



keep
production
materials
moving
with

ELECTROLIFT WORM DRIVE HOIST

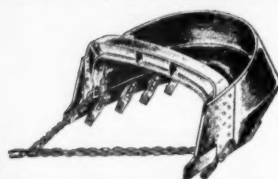
Safer, smoother, faster action features of ElectroLift will keep your materials and loads moving economically. One-man, quiet operation. Wide selection of speeds, capacities and controls.

For further information consult your ElectroLift representative listed in telephone directory.



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REDUCE BULK STORAGE LABOR AND EXPENSE...



Here is the way to get greater economy, more efficiency in storage and reclamation of bulk materials.

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SAUERMAN CATALOG

Thirty two pages, fully illustrated, giving complete information on Bulk Storage by Power Scrapers, including:

- The Modern Way to Store and Reclaim
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- Technical Details on Storage and Reclamation Equipment and Methods

SAUERMAN BROS., Inc.

540 Clinton St.,
Chicago 7, Ill.

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FLOW • OCTOBER, 1953

MARKING . . .

(Continued from page 126)

To re-claim containers previously marked with permanent, penetration type inks, obliterating brushes and rollers are available. Ink which can be purchased to be used with these devices will cover old inscriptions in one coat, and will dry in two to five minutes. It also helps to waterproof packages.

Where containers are to be numbered consecutively, there are hand-operated numbering machines which do the trick. Most of them are self-inking with the numbers changing automatically after each marking. For long runs, there are units which can be installed on conveyor lines.

Tags and Labels

When the surface of a container does not lend itself to adequate marking, or where items do not have sufficient area to be marked, tags or labels are ideal. Ordinarily, tags are made of paper or cardboard, but for excessive distances (overseas shipments, etc.), metal tags are best.

Where large quantities of labels are required, automatic label printing and addressing machines can be used advantageously. Some of these machines are capable of printing, addressing, counting and cutting to size, 100 labels per minute.

Application of labels can be put on a production line basis too. Labeling machines are capable of applying labels in quantities ranging up to 60 per minute. (For increased production, automatic feeds may be used to permit labeling two, three and even four bottles at a time, automatically).

Labels for an automatic labeling machine are usually stacked in a hopper from which they are lifted, passed over a glue roller and then placed on the package. Then a pressure pad shaped to fit the contours of the package presses the label firmly in place.

Pressure-Sensitive Plastic Labeling Tapes

A new entry into the field of package marking is the pressure

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PRECISION-BUILT FOR ROUGH, TOUGH SERVICE!

WRIGHT-HIBBARD LOW LIFT PLATFORM TRUCKS



Model RBH-20
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Low Lift Platform Truck

These heavy duty units are unequalled for dependable, low cost skid handling and transport of heavy materials. They are the most compact and maneuverable platform trucks available for heavy duty work. Wright-Hibbard Low Lift Platform Trucks satisfy today's stepped-up production requirements. Your best choice for longest, trouble-free service and lowest operating cost. Capacities 2000 to 4000 lbs., platform sizes to suit any need. Write for bulletin giving general specifications and engineering data.

Precision-Built Industrial
Electric Trucks Since 1917

W H

Low Lift Platform Trucks
High Lift Platform Trucks

Fork Lift Trucks
Burden Carrying Trucks

WRIGHT-HIBBARD INDUSTRIAL ELECTRIC TRUCK COMPANY, PHELPS, N. Y.

It would take a man 7 months to shovel that much sand!

Let's assume several things:—1st. The sand in the pictured silo is loaded into one car at a time; 2nd. The car is spotted beside a building; 3rd. A man shovels the sand into a window which is level with the floor of the car. Working six days a week, he'd be at it for seven months.

Of course, the assumption isn't tenable on account of demurrage if for no other reason. But it illustrates the absurdity of wasting manpower shoveling sand—or coal, grain, limestone, wood chips, or anything else.

This Neff and Fry Silo is used by the Michigan Silica Co., Rockwood, Mich., for storing dry silica sand. It is 24' x 50' and will hold approximately 50 carloads. Sand is spouted into the silo from the processing plant. For loading into cars, the sand flows into a boot from where it is raised by a bucket elevator to a chute. Another Neff and Fry silo is used by the same company for handling wet sand.

If you handle flowable bulk materials, we can give you valuable information. Communicate with us.

THE NEFF & FRY CO. • 110 Elm St., Camden, Ohio

NEFF & FRY

SUPER-CONCRETE STAVE
STORAGE BINS

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be modern — use ...

LOAD-VEYORS

Light Weight and Heavy Duty Conveyors




Roll your load

THE EASY WAY

Save Time ... Money ... Labor

\$19.20
5' SECTION

\$34.80
10' SECTION

F.O.B.
EVERETT

Here is the lightest and strongest portable steel conveyor. Handy Load-Veyors pay for themselves quickly . . . cut handling costs three ways. Each 10-foot section has 103 ball bearing rollers mounted in rigid grid construction . . . to move your loads with speed, ease and safety. Reversible — either side can be used. Handles both large, small and bulky items. Complete selection of connectors, stands and guide rails available if needed. Ideal for factory, warehouse, truck and store. Order today.

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Market Forge Company

EVERETT 40, MASSACHUSETTS

MARKING

Continued

sensitive plastic labeling tape. Essentially, it is made of a plastic strip laminated to a pressure sensitive backing. Pressure of a writing instrument such as a stylus, pencil, or a typewriter, will cause whatever message is desired, to appear through the plastic coating. Actually, the message is between the plastic and the backing, but shows through the transparent coating.

The result is a non-smudging, permanent label which can be wiped clean if dirt should obliterate the message. The tape is ideal for identifying the contents of packages which will be placed in storage where aging and dust in the atmosphere are likely to take a toll.

Sealing Tapes

An effective and inexpensive means of identifying packages is

ALLIGATOR



CONVEYOR BELT LACING




Every Tooth A Vise*

In Long Continuous Lengths for Conveyor Belts

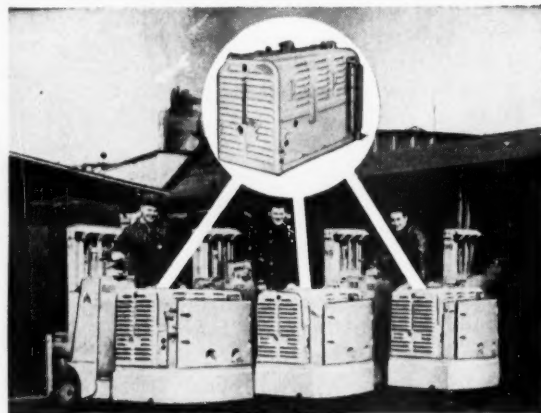
- ★ Excellent for Package Conveyors, Portable Loaders, Trenching and Ditching Machines, etc.
- ★ In canneries where corrosion or rust is a problem specify Alligator made of Stainless or Monel.
- ★ For magnetic separators or anti-sparking specify Alligator made of Everdur.
- ★ Separable and smooth on both sides.
- ★ 12 sizes. For belts from 1/16" to 5/8" thick — and any width.

Order from Your Supply House. Ask for Bulletin A-60.
FLEXIBLE STEEL LACING CO. 4702 Lexington St., Chicago 44, Ill.

JUST A HAMMER TO APPLY IT

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Ready-Power is the Only Interchangeable Gas-Electric Power Unit



Interchangeable Ready-Power units allow the most economical system of preventive maintenance known, with *no truck downtime!* One spare power unit permits rotation of maintenance while trucks stay "on the job" . . . an important reason why Ready-Power drive moves materials at lowest cost per ton mile!

Remember . . . Your Truck is No Better Than Its Power!



The READY-POWER Co.

3838 Grand River Ave., Detroit 8, Michigan
Manufacturers of Gas and Diesel Engine-Driven Generators and Air Conditioning Units; Gas and Diesel-Electric Power Units for Industrial Trucks

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by means of distinctive printed gummed sealing tapes. They make it possible to prominently display your brand name or trade mark, shipping and storage instructions and product illustrations at the same time that you are providing an effective closure for your package.

A printing device available for use with gummed tape dispensers, codes, stamps, or prints messages on the tape as it is being dispensed for use. It uses a self-inking printing cylinder and is claimed to be easily attached to any standard three-inch dispenser.

FLOW'S thanks to the following for information and photographs used in the preceding survey:

Algene Marking Equipment Co.; American Tape Printer Co.; Diagraph-Bradley Industries, Inc.; Floquil Products Inc.; Wm. A. Force & Co.; Adolph Guttoscho, Inc.; Industrial Marking Equipment Co., Inc.; Labelon Tape Co., Inc.; Markem Machine Co.; Marsh Stencil Machine Co.; Multistamp Co.; Nashua Package Sealing Co., Inc.; New Jersey Machine Corp.; Tape Mark Co.; Weber Addressing Machine Co.

MERRILL MATERIALS HANDLING DEVICES

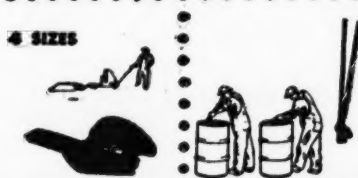


SIZES

LIFTING CLAMP • TWIN LIFTER



HAND GRIP • DRUM TILTER



4 SIZES

DRAG CLAMP • DRUM OPENER

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MASPETH, N. Y.

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outlasts all others

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EXCLUSIVE!

THE HEART OF
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This sturdy Dyna-Dual
Power Unit out performs
all others for ease of
operation—dependability
—lowest maintenance cost
and economy of power.



Over 1071 different
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there is one for every need.



LIFT TRUCKS

INCORPORATED

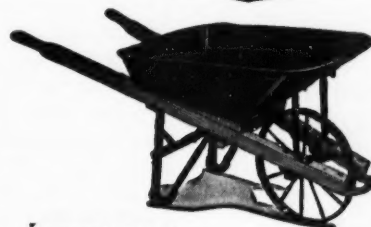
HYDROELECTRIC with exclusive
Dyna-Dual Power Unit gives 4
times longer operating life—plus
75% lower maintenance expense—
making it your best investment
for material moving.

HYDROELECTRIC also brings you
all these SUPERIOR functional fea-
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wheels • Completely sealed dif-
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HYDROELECTRICS will keep roll-
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at lower costs than any truck in
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STERLING D3 1/2 W
(above) Sturdy wood-handle barrow for dry
materials. 3 1/2 cu. ft. capacity.

STERLING CSW
(right) Ideal for concrete, mortar, etc. 5 cu.
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Sterling Wheelbarrows move quick-
ly and easily because of their
perfectly balanced construction.
Actually 80% of the load is on the
wheel . . . only 20% on the op-
erator. That certainly lightens the
load for fast, easy wheeling.

Wood handles are longer, formed
to fit the operator's hands. Steel
channel legs and reinforcements
are designed for maximum leg
clearance. Write for new Wheel-
barrow Catalog No. 63A.

**DEALERS NEEDED —
WRITE FOR DETAILS.**

STERLING WHEELBARROW CO., Milwaukee 14, Wis.

Sterling

WHEELBARROWS



Look for this Mark of
STERLING Quality

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**you may use the
MARTIN-DECKER lift truck scale**

**for
FREE 15 DAYS**

If for any reason you are not entirely satisfied with it just return the scale to us parcel post prepaid and we will promptly refund your money provided the scale has not been damaged

**WEIGH IT
AS YOU LIFT IT**



**makes every
lift truck
a scale**

*Fits Any
Hydraulic
Cylinder Type
Lift Truck*

THE MARTIN-DECKER LIFT TRUCK SCALE

- Enables Fork Truck Driver to totalize highway truck or railroad car loadings
- Prevents highway overload citations
 - Insures a pay load every time
 - Ideal for testing truck ratings
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- Prevents elevator overloads
 - Safeguards equipment and life
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The time and equipment savings will quickly pay for the MARTIN-DECKER Lift Truck Scale

ACT NOW!

- ☐ Please send literature on Martin-Decker Lift Truck Scale.
- ☐ Have local representative call for an appointment.

Name

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Company

City State

MARTIN DECKER CORP.



LONG BEACH, CALIFORNIA

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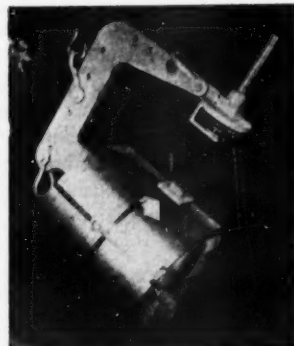
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NEW EQUIPMENT . . .

(Continued from page 44)

Coil Handler

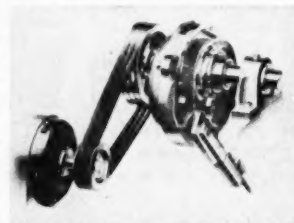
Dixon Automatic Tool, Inc. has announced a 15,000 lb. capacity coil handler for lifting and turning coils up to 48 inches wide. The device was designed to pick up, turn, transport or stack large, heavy coils. After the unit is placed on a coil, the pressure shoe is adjusted to the coil radial thickness. The pressure shoe has a floating action to allow full bearing on the outer diameter of the coil. A concave surface on the shoe allows maximum clamping surface. Ten lineal feet of 1/4-inch chain is provided as standard equipment. When coils are stacked several tiers high, the chain length allows the operator to release the pressure shoe from the floor. Minimum width capacity is 24 inches and maximum is 48 inches.



Circle 234 on Reader Service Card for more information

Speed Reduction Units

New 13-to-1 ratio series of shaft-mounted speed reduction units has been introduced by the American Pulley Company. Retaining the features of the 20-to-1 series, the new units extend the advantages of V-belt drives to cover a wide variety of slow-speed equipment. Said to be adaptable to any shaft size, up to 3 15/16 inches the speed reducers are compact, requiring only standard shaft lengths (twice the shaft diameter plus clearance) to be mounted directly on the shaft of the driven machine. Two trains of flame-hardened helical gears reduce the driven shaft speed to obtain the 13-to-1 ratio. Gearing and bearings are continuously splash lubricated by the high speed gear and the counter shaft pinion.



Circle 235 on Reader Service Card for more information

Radio Paging System

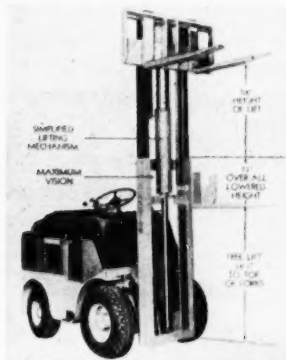
Transmitting equipment of the new radio paging systems in operation in several major cities is being supplied by the General Electric Company. In the systems subscribers carry vest-pocket

radio receivers to receive messages from their offices, homes or other localities. A General Electric transmitter is installed at the paging service headquarters in each of the cities. The systems are being established by the New York Technical Institute of Cincinnati.

Circle 236 on Reader Service Card for more information

Free Lift Mast

High stacking of heavy loads in low headroom



areas is made possible by Towmotor Corporation's new mast and lifting cylinder assembly for the corporation's smaller capacity model LT-35 lift trucks. The mast and lifting cylinder are said to provide unusually high free lift at lowest over-all truck height. The

assembly is interchangeable with standard masts, but affords more free lift and total lift for any given mast height. Lifts available range up to 160 inches with 81¼ inch free lift.

Circle 237 on Reader Service Card for more information

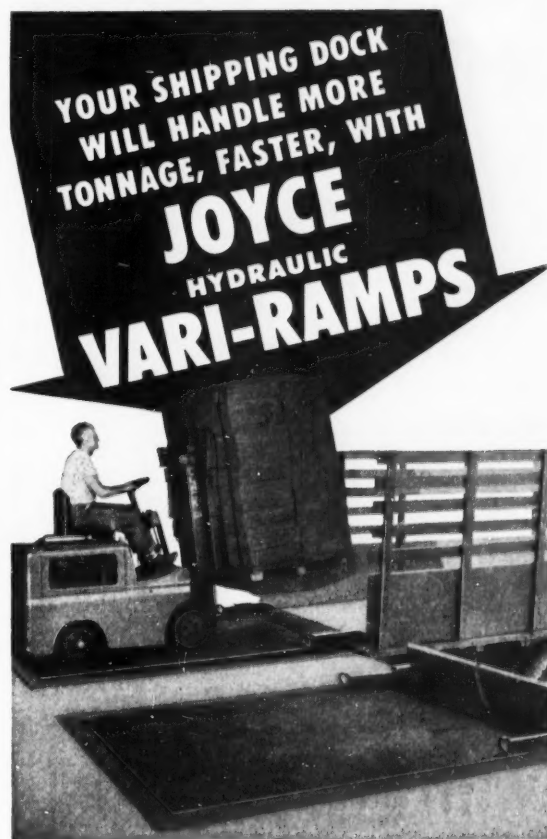
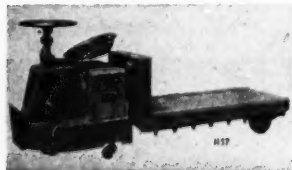
Templets for Layouts

New line of templets, printed on film for plant layouts, is announced by Repro-Templets Inc. The line includes templets, for more than 10,000 standard machine tools and other metal working plant equipment, represent the overall dimensions of the equipment, show, in dotted lines, the floor contact base and are identified with typeset lettering. The company claims the templets, checked for accuracy by the manufacturers of the equipment, provide a precise, time-saving two-dimensional plant layout system, when used in conjunction with film grid sheets.

Circle 238 on Reader Service Card for more information

Concrete Block Truck

Designed to serve any industry that handles fragile materials, the Market Forge Company's new electric concrete block truck has capacities of 3000 and 500 pounds and a platform 60 inches long and 31 inches wide. The platform, when lowered, is 13 inches high. The truck, with automatic control, has four speeds in both directions. Maximum speed is approximately 3½ miles an hour. The front driving wheel is 10½ inches



JOYCE Hydraulic Vari-Ramps quickly pay for themselves by enabling shipping departments to handle more tonnage on a given length loading dock, faster, and with fewer men. This is possible because they fit all trucks . . . adjust quickly to the truck bed level . . . and are self-leveling with the truck bed as it varies in height, during loading and unloading.

Joyce Vari-Ramps are available in sizes, capacities, and vertical movements to exactly fit your requirements . . . electric-hydraulic or air-oil operated . . . hand or foot valve, or push button control . . . platforms of all steel, welded construction with non-skid decks.

And when you investigate the price, you will find the initial cost, the installation cost and the operation cost are all on the low side.

The Joyce-Cridland Co. manufactures a complete line of Materiallifts, Elevators, Cross-over Bridges, Hydraulic Feed Tables, Factory Truck Lifts and Industrial Jacks.



**WRITE TODAY FOR
COMPLETE INFORMATION**

THE JOYCE-CRIDLAND CO.

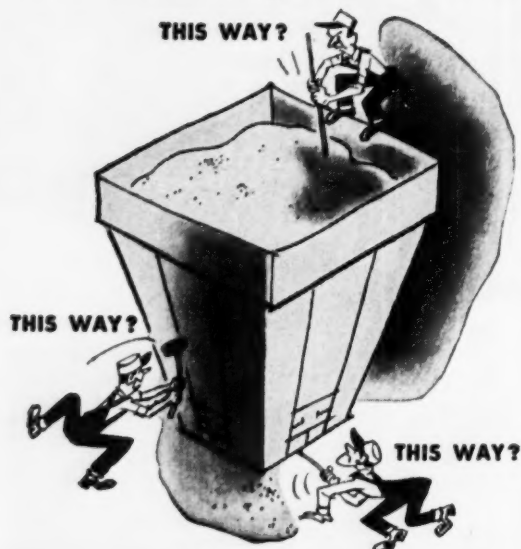
DAYTON 3, OHIO, U.S.A.

IN CANADA: Midland Foundry & Machine Co., Ltd., Midland, Ontario

Circle No. 160 on Reader Service Card for more information

173

How do YOU keep stuff flowing from bins?



Do it the new way with **PNEUBIN**

Delays . . . dangers . . . damage and din . . . PneuBin does away with them all! Pulsating neoprene panels, mounted inside the walls, keep stubborn materials flowing from any type of bin or hopper. They work noiselessly, by positive displacement . . . move the contents, not the bin.

PneuBin can solve your toughest bin-flow problem . . . without the hazard of prodding from above or below, the damage inflicted by hammer blows or vibration, the fatigue caused by shattering noise. PneuBin's efficiency, dependability and economy, proved in many leading plants, will be a boon to yours.

Write for "Flow Stoppage Report" form . . . no obligation.

GEROTOR MAY CORP., Baltimore 3, Md.



by the manufacturers of

GEROTOR

HYDRAULIC PUMPS & MOTORS

Circle No. 57 on Reader Service Card for more information.

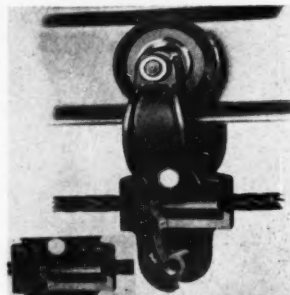
174

in diameter with a 7-inch face. All wheels have precision sealed ball bearings and cushion rubber treads. The platform is spring suspended for handling green blocks and other articles that are similarly fragile. The platform is lifted by power and lowered by gravity under control of a flow control valve.

Circle 239 on Reader Service Card for more information

Trolleys with Locks

Swaged bushings that lock the trolleys on immovable centers are provided on overhead trolley conveyors manufactured by The E. W. Buschman Company. A two-piece trolley is bolted over the cylinder bushing, which is permanently locked to pre-formed cable on accurate centers by high pressure swaging. Multiple lock assemblies on cables of 100 feet or less and rotary floating trolley to insure true alignment are patented features. Because intermediate and splice pulleys are identical, the manufacturer claims that it is easy to splice the cables. At the



Lift HEAVIER Loads HIGHER the SAFE WAY

NEW Safeway ELECTRIC FORK LIFT TRUCKS

- ♥ 3 sizes offer 66", 80", or 100" lifting heights—rated at 1250 lbs. lift.
- ♥ Powerful hydraulic system activated by auto-type battery. Built-in charger with automatic cut-off, trickle charge.
- ♥ Electronic switch cuts off power at maximum height — prevents jarring load, damage to hydraulic system.
- ♥ Touch control—PUSH to lift, RELEASE to hold, PULL to lower at any speed.
- ♥ Safety hand-operated brakes prevent movement when loading or unloading, provide positive control on inclines.
- ♥ Ruggedly built, easily maneuvered, for long life, efficient one man operation. Load, unload, stack or move materials faster, easier, more safely.

"Snap on" Platform a plus feature
Write for Complete Details

Safeway INDUSTRIAL EQUIPMENT CORP.
184 N. FRANKLIN ST.
CHICAGO 6, ILLINOIS

Write or Phone for Demonstration
Phone: RAndolph 8-1604 Chicago

BIG VALUE LOW COST

Circle No. 122 on Reader Service Card for more information
FLOW • OCTOBER, 1953

splices, the bushing at the end of each cable is half length, the trolley completing the splice. The lock grips the cable with a strength equal to the ultimate strength of the cable itself.

Circle 240 on Reader Service Card for more information

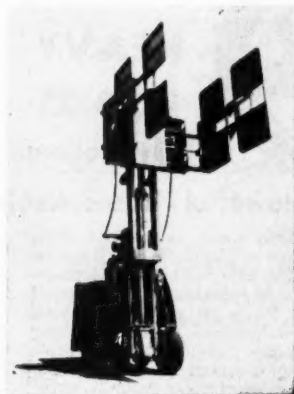
Air Hoist

An air hoist, weighing 27½ pounds with capacity to lift 1000-pound loads at 40 feet per minute, is announced by Aro Equipment Corp. The hoist is a roller chain type, powered by rotary vane air motor. The rate of lift can be regulated by throttle control which is infinitely variable from 0 to 40 feet per minute. This permits inching the load where required. The hoist meets requirements for explosion-proof operation, and also has safety snap hooks, top and bottom, adjustable safety stops on the chain to limit the lift and descent, and a safety brake which automatically locks when the control is released. Other construction features: standard lift, 8 feet; recommended hose size, ½ inch; minimum hook-to-hook distance, 13¼ inches; overall length, 10 ⅞ inches; maximum diameter of body, 5 inches.

Circle 241 on Reader Service Card for more information

Crate Handling Attachment

This fork truck attachment for palletless handling of television crates and similarly packaged items is manufactured by Automatic Transportation Company. The device lifts 2, 4, 6 or 8 crated TV sets at a time with hydraulically-actuated, rubber-faced steel clamps. Clamping range of the crate handler is from 22 to 70 inches, permitting lifting and tiering of the smallest or largest size TV crate. Mounted on a 2000-pound capacity Automatic Skylift electric truck, the attachment tiers loads through 106 inches of vertical travel. Only one control is needed to operate the clamping mechanism. By lateral movement of a handle lo-



WINNING WIDE APPROVAL

NEW WAY TO LOW COST

materials
handling

IN MANY SIZES &
IN ANY PRACTICAL
LOAD CAPACITY



ROLL-WAY®

BASKET STACKS

"One of the best pieces of materials handling equipment we've seen in a long time."—"Roll-Way is the simplest, low cost way we've found yet to do the job." That's what experienced materials handling men are saying about Roll-Way Basket Stacks.

FEATURES—

Stack-lock handles—All welded construction
—Reinforced corners—Expanded metal sides and bottom—Heavy duty dollie designed for 1, 2 or 4 basket stacks—Low in cost.

CHECK every operation in your plant and you will find dozens of places where Roll-Way will speed your out-put and cut your handling costs.

WRITE TODAY for descriptive bulletin and price list
—no obligation.

H

OFFMAN COMPANY

2588 W. PHILA. ST., YORK, PA.

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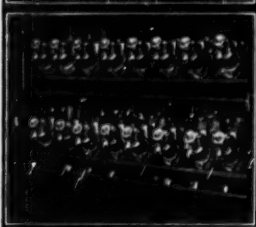
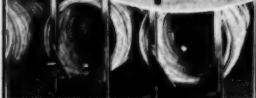
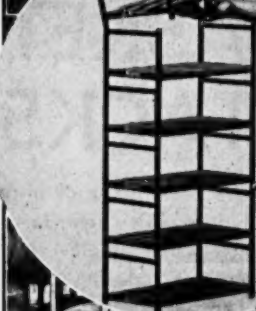
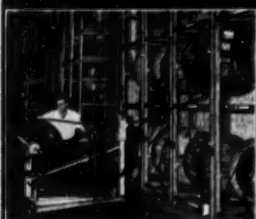
COLLAPSIBLE STOCK BOXES • ROLL RACKS • BULKHEADS

COIL RACKS • REEL RACKS

Well Stacked!

Let our rack specialists assist you in planning your new system to incorporate special economies in unit load handling—in production—in storage, regardless of the type material or product or unusual condition involved.

Our strong square tubular EMI racks save floor space and do it in the most efficient way.



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for our
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STOCK RACKS

PALETT RACKS

PALETTES

DOLLY TRUCKS

**EQUIPMENT
MFG. INC.**

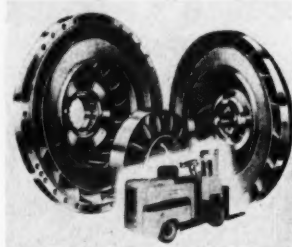
21582 HOOVER ROAD, DETROIT 5, MICHIGAN

cated next to the truck's steering wheel, the clamps are opened or closed. When the handle is released, it returns to a neutral position, locking the attachment's hydraulic system.

Circle 242 on Reader Service Card for more information

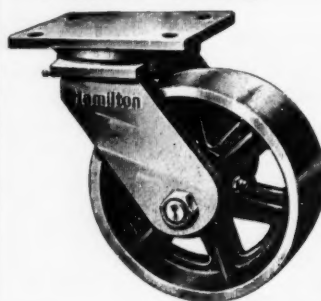
Hydraulic Torque Converters

Heavy-duty hydraulic torque converters for Buda fork trucks have been announced by Torcon Corporation. The single-stage three-element unit combines a hydraulic torque converter and a hydraulic coupling into a single unit, including single-piece, aluminum cast wheels, heavy duty bearings with forced lubrication and lip seals not exposed to high pressure oils. The converters are for either gasoline or diesel-powered equipment. The corporation claims the converters have automatic and infinite speed transmission, longer clutch life, reduced wear on the machinery and operator, and improved starting, humping, ramp work, and high tiering.



Circle 243 on Reader Service Card for more information

Hamilton "AIR-FLO" CASTER



Especially
Designed
for Handling
**HEAVY
LOADS**

Easy Rolling -

Powerful - Unbreakable

The "Air-Flo" Heavy Duty Caster is just one of the many styles and sizes made by Hamilton. The large line includes casters for almost every industrial purpose—swivel and rigid, single and double-wheel, all-metal, rubber-tired or molded plastic. If you are not using Hamilton Casters, get acquainted with their expert design and smooth, trouble-free performance. Prices are right, and satisfaction is guaranteed by our manufacturing experience of 45 years.

Write for Catalog

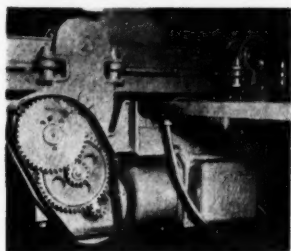
THE HAMILTON CASTER & MFG. CO.
1672 Dixie Highway Hamilton, Ohio

Circle No. 48 on Reader Service Card for more information
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Circle No. 65 on Reader Service Card for more information
FLOW • OCTOBER, 1953

Motor-Driven Trolley

By changing two or four gears any one of 18 travel speeds is provided by a motor-driven trolley for tramrail service announced by The Forker Corporation.



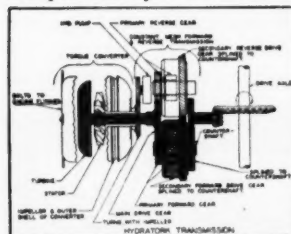
The units may be constructed to a short wheel base at 25 inches in a four wheel design or in an eight-wheel design with the wheels 16 inches apart along the line. The trolley

is designed for electrification that carries current conductor bars in a metal housing directly under the track. The current collector shoe is situated in a protected position inside the trolley and resting on the load bar. A double reduction straight spur gear is used to power the drive wheels.

Circle 244 on Reader Service Card for more information

New Truck Transmission

Driving a gas-powered fork lift truck said to be as easy as driving the family automobile is accomplished by a new transmission announced by



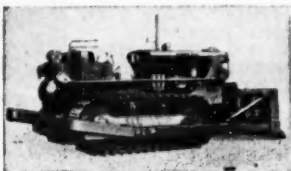
the Clark Equipment Company. The truck is operated with the same three controls used to operate an automobile—an accelerator, brake pedal and a forward-reverse selector lever

on the steering column. Need for a gear shift for high and low gears and a clutch and clutch pedal is eliminated. Gear clashing during engagement is also said to be eliminated. The drive consists of a torque converter combined with a single-step, constant-mesh, forward-reverse transmission. To start the truck, the torque converter adds its multiplying force to the fixed gear reduction of the transmission and drive axle. As the vehicle approaches cruising speed, torque multiplication drops to zero.

Circle 245 on Reader Service Card for more information

Pusher Tractor

To meet a demand for tractors capable of heap loading large scrapers, the Caterpillar Tractor Company has announced a new pusher tractor,



which is a combination of a 150-drawbar-horsepower tractor, bulldozer and cable control. It has a total weight of 50,025 pounds and as standard equipment, a special heavy weight crankcase

Circle 246 on Reader Service Card for more information

**Position Freight
Carriers To Any
Level With**



**ROWE
ADJUST-A-TRUCKS**

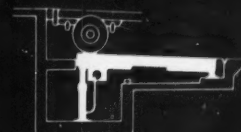
**Now, When You Can't Adjust Your Docks,
You Can Adjust Your Trucks**

Here is the answer to the problem shared by many companies who do not have room on their docks or in front of their docks to install adjustable dock ramps. Now, Rowe Methods, Inc., manufacturer of the world famous Adjust-A-Dock, brings you its ADJUST-A-TRUCK, which brings any vehicle to dock height. Here is a unit that is set into the pavement in front of the dock and by means of a heavy-duty electric hydraulic system to adjust each vehicle to dock height; its capacity, 40,000 lbs.

Here's How It Works



IT LOWERS



IT LIFTS

Write today for this free, informative booklet, illustrating and describing the revolutionary Rowe Adjust-A-Truck.



ROWE METHODS, INC.

2534-C DETROIT AVE.

• CLEVELAND 13, OHIO

Circle No. 117 on Reader Service Card for more information

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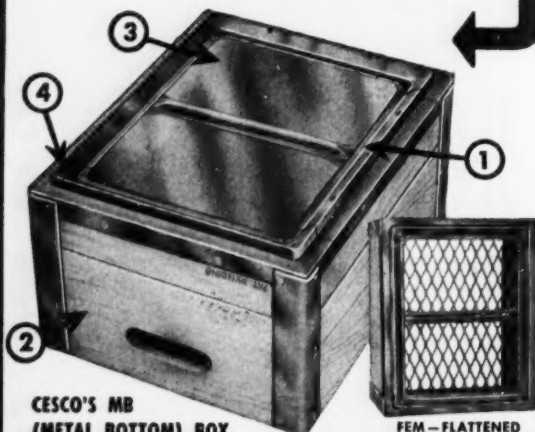
Cesco's TOTE-SHOP BOXES

...Do Your Job • EFFICIENTLY • EASILY • ECONOMICALLY

ON CONVEYORS, PALLETS, HAND TRUCKS, SKID PLATFORMS, OR WHAT HAVE YOU



1. Heavy Duty Strut ... Prevents Sag ... Permits Bottom Flex ... Distributes shock.
2. High Grade Hard Wood Lumber .
3. (FM) Flat Metal Bottom ... likewise available in open type bottoms FEM-FPM-WM illustrated below.
4. Specially designed "Bottom Stacking Runner" ... One piece ... Rounded Corners (No Mitered Joints — No Distortion).



CESCO'S MB (METAL BOTTOM) BOX

(Prices net - per box)	MB-20	MB-24
Lots of 2000.....	\$2.65	\$3.00
1000 — 1999.....	2.68	3.03
500 — 999.....	2.71	3.06
250 — 499.....	2.76	3.11
100 — 249.....	2.81	3.16

2 STANDARD SIZES

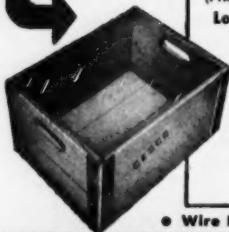
MB-20: 14½" x 11¾" x 9¾"
MB-24: 17½" x 11¾" x 9¾"

F.O.B. Northampton, Mass.

CESCO'S WB (WOOD BOTTOM) BOX
Depending upon the material packed and the handling method stock sizes will accommodate loads up to 200 lbs.; possibly greater.

- Ruggedly constructed ... steel reinforcing features of zinc coated prime stock ... Self Stacking ... convenient hand holes
- Binding rivets PLUS corner lock style yields maximum rigidity

Write today for quotations on special sizes ... Please submit specifications.



CESCO'S WB (WOOD BOTTOM) BOX

(Prices Net - per box)	WB-1	WB-2	WB-3
Lots of 2000	\$1.96	\$2.14	\$2.28
1000—1999	1.99	2.17	2.31
500—999	2.02	2.20	2.34
250—499	2.07	2.25	2.39
100—249	2.12	2.30	2.44

No. 1 size — (I.D.) — 14½" x 11¾" x 9"
No. 2 size — (I.D.) — 18" x 11¾" x 9"
No. 3 size — (I.D.) — 20" x 11¾" x 9"

F.O.B. Northampton, Mass.

● Wire Baskets ● Special Pallets ● Tote Trays

CESCO CONTAINER CO.

475 Fifth Avenue
New York 17, N. Y.
Factory: Northampton, Mass.

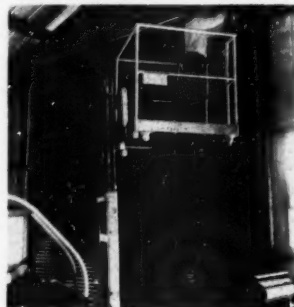
Circle No. 152 on Reader Service Card for more information
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guard and track roller guards. The bulldozer and cable controls are for inline pushing action and clean up of cut. The transmission is designed to give most suitable pushing speed. One of the features of the tractor is the tandem pusher frame attachment for difficult loading conditions.

Circle 246 on Reader Service Card for more information

Safety Work Platform

Built according to state safety regulations the Hamerslag Equipment Company's new safety work platform is for use in conjunction with a fork lift truck and to provide easy work access at any fork lift elevation. The platform has a four-way fork entry, is 42 inches wide, 42 inches long and 42 inches high with a hinged gate at one side and has a chest-level safety railing all around. The floor is faced with a 4-inch toe plate. The unit is mounted on 3-inch rubber casters for easy rolling when not in use. An all-metal, lightweight, portable tool box, designed to fit the platform, is an accessory.



Circle 247 on Reader Service Card for more information

HERCO

4 WAY — Up-Down-Right-Left

COUNTERWEIGHT ACTION
DOCKBOARD



Improved, positive geared counterweight action. (Assures board contact with truck at all times.)

Simplified geared side to side adjustment
Installation made easy with new design
Operates in all kinds of weather
Right or left hand control
Automatic locking in raised position

● NO MAINTENANCE OR UPKEEP ● BUILT TO MEET TODAY'S TOUGH DOCK PROBLEMS ● LOW IN COST ● ECONOMICAL INSTALLATION

Karl A. **HERMAN** Company

412 FULLER AVE., N. E.
GRAND RAPIDS, MICH.

Circle No. 162 on Reader Service Card for more information
FLOW • OCTOBER, 1983

Magnesium-Light Conveyor

A portable roller conveyor system fabricated entirely of magnesium has been introduced by Magline, Inc. The new Magliner conveying system combines capacity-rated strength and utility with magnesium lightness and greater ease of handling. According to the manufacturer, the units weigh from 15 to 40 percent less than comparable equipment of similar size and capacity. The conveyor can be installed as a complete system or supplied in individual sections with couplers to match existing equipment. Portable magnesium stands in three heights from 17 inches to 72 inches above floor level also are available.



Circle 248 on Reader Service Card for more information

Calibrated Wire Rope

Wire rope calibrated with special marking pigments developed as a result of extensive research is being produced by the Paulsen-Webber Cordage Corporation. The rope is marked in accurate colored bands at 5-foot intervals, as standard practice, but also may be marked in feet or

Circle No. 45 on Reader Service Card for more information

THE "Easy-tote" DEPARTMENTAL TRUCK

USERS LIKE THEM . . . 75% REORDER

75% of users reorder . . . proof of the lower cost, easier handling Easy-totes provide on countless, small, important jobs. Large and small plants use this all-purpose truck to out-manuever and out-perform conventional hand trucks. There's nothing else like it. Three wheel arrangement, swivel caster in rear, low tilting baseplate (16" x 22"), adjustable hook and crank permit one man to handle loads up to 400 lbs. quickly, without lifting injuries. No need to "muscle the load" . . . see 1-2-3-below. See this proven equipment . . . give Easy-tote a trial . . . order one today—only \$28.00. Send for further information.

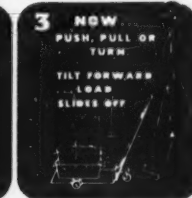
THE EASY-TOTE PRODUCTS CO.
P. O. Box 86 Buffalo 17, N. Y.

STOP THIS!
USE EASY-TOTE



Turns
In Its
Own
Length
PATENTED

Other Models
and Sizes Available



Meet and Beat Competition

with



WHEELER *Capacity*



WHEELER *Speed!*

Streamline loading, stockpiling, clean-up jobs . . . move large loads over rough, unpaved yards at high speed! Handle all load shapes and sizes in less time with easy-steering, heavy-duty MM Wheelers. On every job, MM Wheelers are money-makers. They're lower in first cost because MM high-production cuts manufacturing costs. Extra speed and capacity hold down operating costs, help you show a better profit job-after-job.

If you're checking your expenses closer these days, compare MM Wheelers against the field. Check for power, speed, capacity, price. Try the Wheelers for performance and ease of operation. See for yourself why more and more companies call MM Wheelers the leaders in industrial loader value.



Here's the 51 hp MM UTIL WHEELER feeding aggregate into asphalt mixing plant. Owner says UTIL shuttle gear lets him double his loading speed.



MM maneuverability lets Wheelers work in tightest spots. Handling ease cuts operator fatigue, boosts operator efficiency.

MINNEAPOLIS-MOLINE MINNEAPOLIS 1, MINNESOTA

Circle No. 96 on Reader Service Card for more information

SAVE MANPOWER



MODEL 230—Portable "Hi-Speed" troughed belt conveyor . . . standardized and "job-fitted" for more economical and faster handling. Built in lengths up to 46 ft. Powered by gasoline or electric motor. Write for Bulletin A-296.

with BAUGHMAN



MODEL Q-51—New Hi-Speed Screw Conveyor for all material that rolls or becomes fluid in motion. For permanent installations or portable models as shown above. Underbin or undertrack screw loader easily attached. Write for Bulletin A-295.

Bulk Material Conveyors



MODEL 175—Hi-Speed Belt and Bucket Elevator. Fully enclosed, spaced buckets, centrifugal discharge elevator for permanent or temporary installations. Also open belt and bucket elevators. Models 210 and 220 available. Write for Bulletin on these models.

MODEL 225—Conveyor combinations assembled from standardized sections, easily "job-fitted" to any bulk material handling. Prompt delivery from stock. Write for Bulletin A-342.

Sold and serviced nationally and in Canada. Write Baughman, the Best name in Bulk material handling.



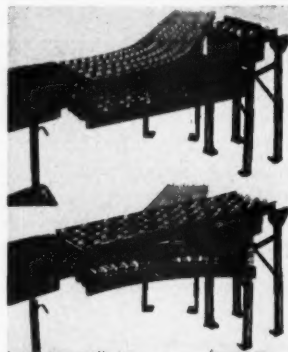
BAUGHMAN MANUFACTURING CO., INC.
105 ARCH ST., JERSEYVILLE, ILLINOIS

fathoms at any desired intervals. The rope, in diameters of $\frac{1}{8}$ -inch to $1\frac{1}{2}$ inches, is made of improved plow steel and standard plow steel.

Circle 249 on Reader Service Card for more information

"Flip Switch"

Gravity line pitch adjustments to change direction of material flow are eliminated by a new wheel conveyor "Flip Switch" announced by the Rapid-Standard Company, Inc. It permits handling of both incoming and outgoing stock on a single belt conveyor. Two gravity wheel sections are mounted back in a rigid frame and rotated on a pivot. In one position the "Flip Switch" flows material away from the belt. Rotation brings up the opposite "Flip Switch" section to flow material in the opposite direction. The single self-contained unit takes the place of separate curved or straight sections which formerly had to be detached or connected with each change in direction of flow. It is designed for use with a wheel conveyor 18 inches wide and to handle



You can provide easy mobility to a variety of industrial products with **IRONBOUND ALL-PURPOSE HANDLING UNITS . . .**



POPULAR IRONBOUND



● An easy to handle ruggedly constructed unit for carrying bulky and heavy loads at lowest cost. Seven standard sizes with one or two push handles makes it easy to select the proper truck for your requirements. Ask an Ironbound engineer for suggestions.



The HANDY
for furniture and similar items.



The HAULER
for cases, crates, tote boxes, etc.



The HUSKY
for general use throughout the plant.

THE IRONBOUND "SAFETY-SKID" WITH ROUND CORNERS

Ironbound construction assures long hard use with complete safety to product and operator. Still the time proven method for handling of materials efficiently and economically.



IRONBOUND

BOX & LUMBER COMPANY
Materials Handling Division
30 HOFFMAN PLACE • HILLSIDE, N. J.

MANUFACTURERS OF QUALITY BUILT SKIDS, SEMI-LIVE SKIDS, FLOOR TRUCKS, ROLL TRUCKS, DOLLIES AND PRY BARS

Circle No. 78 on Reader Service Card for more information

FLOW • OCTOBER, 1953

Circle No. 18 on Reader Service Card for more information
180

cases short as 7 inches. It is obtainable in either spur or Y-switch design. An automatic case stop holds material back until the line is in operating position.

Circle 250 on Reader Service Card for more information

Self-Assembled Trucks

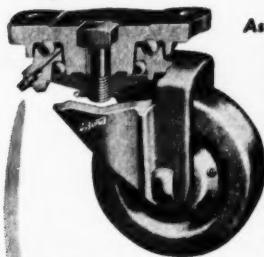
Shipped knocked down, a new series of floor trucks, which are assembled by the user and can be altered to meet changing needs, has been



introduced by the Leebaw Manufacturing Company. The manufacturer states the complete truck may be put together in less than five minutes. All parts are replaceable and interchangeable without fastenings. Trucks are of all-steel welded

construction with gray enamel finish. Standard shelves are 5/8-inch plywood bound with steel angles. Steel shelves with 1-inch flanges, turned up or down, are optional. Shelf and deck sizes are 20 inches by 36 inches. Overall truck dimen-

This **Bond** 36-A Caster
is Your Best Buy
for **DEPENDABLE SERVICE**



C-136-A Series—Double Ball Race Swivel Caster equipped with Roller Bearing Celoron Wheels.

Ask your industrial distributor...

he knows that Bond 36-A Series Casters fit most service requirements. These universally used, completely dependable casters incorporate a fork, base and king bolt construction that distributes the load evenly. Two ball races of almost equal diameter, set one below the other, permit easy swiveling. All moving parts in the ball race are pressure lubricated.

Remember, your best buy is Bond—and your distributor will be glad to help you select the right Bond casters for your jobs. Ask your distributor for a copy of the Bond Catalog K-38 or write direct.

BOND FOUNDRY & MACHINE CO.

Monheim, Penna.

Visit our booth
No. 805
at the
Materials Handling
Exposition,
May 18-22, Philadelphia.

Circle No. 21 on Reader Service Card for more information
FLOW • OCTOBER, 1953

How much do you weigh?

Not you, but your products! Do you weigh in receiving, at production stages, etc. to protect your operation against overcharges, losses, miscalculations? **HYDROSCALE**, the hydraulic crane scale, makes it practical to check whenever and wherever you should, weighs on the spot, eliminates weighing stations and man power and equipment tie-ups.

36 MODELS,
500 to
200,000
LBS.

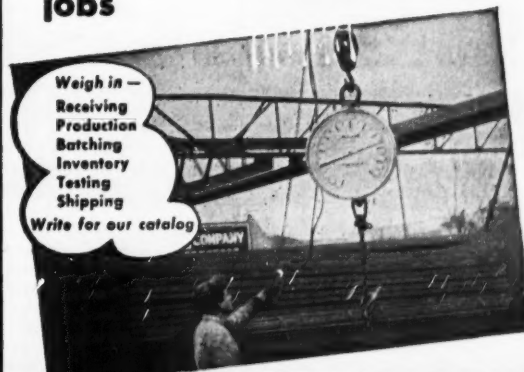
HYDROSCALE

reduces the
effort and
expense
associated with
routine weighing
jobs



Weigh in —
Receiving
Production
Batching
Inventory
Testing
Shipping

Write for our catalog



HYDROWAY SCALES, INC.

28425 W. 8 Mile Rd., P.O. Box 4754 Detroit 19, Mich.

Circle No. 73 on Reader Service Card for more information

Circle No. 60 on Reader Service Card for more information

**SIMPLIFY INDUSTRIAL MAINTENANCE,
SPEED BULK MATERIAL HANDLING**

SCOOT-CRETE

BUILT FOR THE TOUGH JOBS!



Scoot-Crete
Model N-52
Pay load,
3,000 lbs.

Scoot-Crete's heavy-duty, truck transmission stands up under the worst operating conditions; delivers maximum horsepower from the Wisconsin AEN air-cooled engine to the heavy-duty, high-traction 7:50x10, 6-ply U. S. Royal tires. Scoot-Crete scoots 3,000 lb. loads up 25% grades, in plants and at construction sites, has caster steering—turns in its own 90" over-all length. Dump box body interchangeable with flat rack in a few minutes. Speeds, 1 to 15 mph. 14, 16, 20 cu. ft. capacities. Today, write for specifications and performance facts.

**GETMAN
BROTHERS**

MANUFACTURING DIVISION

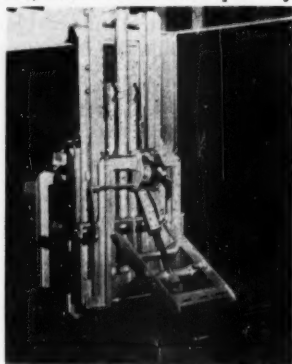
SOUTH HAVEN, MICHIGAN

sions are 22½ inches by 42 inches. Available in four models, the trucks have capacities of 500 and 1500 pounds.

Circle 251 on Reader Service Card for more information

Truck to Carry Dies

An electric truck, designed for handling dies weighing up to one ton, has been developed by The Raymond Corporation. The new truck is equipped with special hydraulic push-pull device for die placement or removal at storage racks or flat bed presses. To load the truck a chain is attached to the die and the push-pull, which pulls it onto the truck platform.



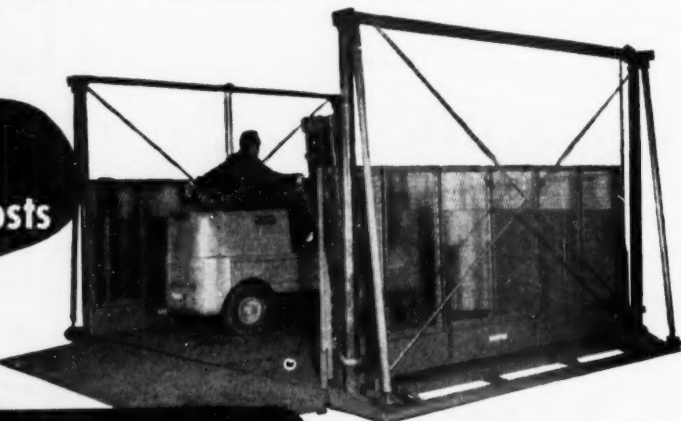
The hydraulic device also pushes the die off the platform and onto the rack or press. The truck is equipped with an angle winch to facilitate loading at an inclined press. The die handling platform is a 24 by 30-inch removable plate which rests on adjustable forks that can be lengthened from 9¼ inches to 30¼ inches.

Circle 252 on Reader Service Card for more information

Here's the **LIFT**
that **LOWERS** Costs

Move Loads Between Levels

with a **SERVICE ELECTRAULIC LIFTER**



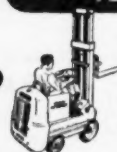
Service "Four-Poster" Lifter eliminates long, space-wasting ramps and takes strain off men and mobile equipment in moving loads between floor levels. Used as a dock hoist, it speeds up loading and unloading of trucks and boxcars. Operates smoothly from an electric-hydraulic power unit de-

signed for continuous operation. No pit is required—it's easy to install indoors or out. Lifters are available with capacities to 12,000 lbs., platform sizes 5 to 12 ft. and for lifts 5 to 17 ft. Both portable and permanently-installed units. For more detailed information, write today, for Bulletin 51.

See **SERVICE** for "Specials"

Versatile design of Service's wide range of Lifters, Levelers and Lift-ables permits them to be made up as semi-specials to fit your exact needs. We'll be glad to help you with your lifting problems.

Keep **MOTOWLIFT** in Mind!



It's the fork lift truck so good that military needs take all we can make. Soon, we hope, you will be able to buy it again—the best truck for most jobs in most plants, Keep Motowlift in mind.



SERVICE CASTER & TRUCK CORP

Executive Offices: Albion, Michigan • Plants at Albion, Michigan and Somerville 43, Mass.

SEE YOUR CLASSIFIED TELEPHONE DIRECTORY FOR NEAREST DISTRIBUTOR

Circle No. 118 on Reader Service Card for more information

Fork Lift Truck

Engineering features, subject to on-the-job tests for several years are included in the new 4,000-pound capacity fork lift truck now in production at the Mobilift Corporation.



The new truck is powered by a Chrysler 6-cylinder, 65 brake horsepower industrial engine with a unique power transmission system. A Chrysler Gyrol fluid coupling is used

in conjunction with the multiple disc, oil-immersed clutch and constant mesh transmission. A four-pinion differential with full floating axles is used to complete the assembly. There is no clutch pedal and no gears to shift. Forward and reverse movements are activated by one push-pull control for right hand operation. Another push-pull lever controls the two-speed transmission. A one-piece hood, hinged on a counterweight, reduces maintenance and service time.

Circle 253 on Reader Service Card for more information

Hour Log

An instrument manufactured by Engler Instrument Company provides an accurate operating record for portable and stationary engines. Called the Engler D. C. Hour Log, it operates on direct current. Simplified design is said to permit reading at a glance.

Circle 254 on Reader Service Card for more information

Parts Handling Equipment

Standardized pressed metal pallets, tote pans, tote pan adapters, and small parts bins that may be assembled without tools into numerous arrangements to suit current production and assembly requirements are announced by the Bathy Manufacturing Company. The line was developed to solve the parts handling problems of one of the automotive companies and



is now available to all mass production industries. Uses include stock rooms, parts departments, tool cribs, maintenance and repair departments, and production departments. The tote pans are designed for easy visibility and accessibility of contents. Any pan may be removed without disturbing its neighbors. Benches may be assembled using tote pan adapters and tote pans as a base.

Circle 255 on Reader Service Card for more information

AUTOMATIC SCRAP REMOVAL

ON ANY MACHINE TOOL

WITH

CHIP-TOTE



The May-Fran Chip-Tote continuously removes turnings, borings and chips from operating machine tools. This unit eliminates machine downtime for manual scrap removal . . . assures continuous full-production operation of machine tool . . . gets rid of uncontained scrap around machine which cuts floor and tires.

Chip-Totes can be installed as part of the original equipment or they can be incorporated as an integral operating unit on almost any machine tool currently in use.

The Chip-Tote utilizes May-Fran Hinged-Steel Conveyor Belting which is perforated to permit coolant drainage. Width, length and angle of incline can be modified to meet specific requirements. Speed of operation can be synchronized with the metal-removing capacity and rate of coolant flow of machine to which Chip-Tote is attached.

Let a Chip-Tote solve your production problems . . . automatically and efficiently.

Write today for Chip-Tote catalog.

Designers, Builders of Handling Systems



MAY-FRAN

ENGINEERING, INC.

1691 CLARKSTONE ROAD • CLEVELAND 12, OHIO
Circle No. 89 on Reader Service Card for more information

CLASSIFIED ADVERTISEMENT SECTION

USED EQUIPMENT — MEN — JOBS — LINES

Rates: for "Positions Wanted" \$8.00 minimum, limit 25 words. For all other classifications \$10.00 minimum for 25 words; each additional word 25c. Boldface type or all caps, \$12.00 minimum for 25 words, each additional word 35c. Box address counts as five words. All insertions payable in advance.

FOR SALE

FORK LIFT TRUCKS

TOWMOTORS—LT-35, LT-44, LT-50, LT-56, LT-62, and LT-72. CLARKS—Clippers, Carloaders, Utilitrucks, and Yardlifts. HYSTERS—20s, 40s, 75s, and 150s. All in various lifting heights and fork lengths. Many other makes and models to choose from. We RENT—BUY—SELL—LEASE fork lift trucks. ATLAS LIFT TRUCK RENTALS, INC., 1139 So. Wabash Ave., Chicago 5, Ill., WEBster 9-3438.

HELP WANTED

SALES ENGINEER

For reliable distribution company in northern California area. Must have sales engineering qualifications and broad experience in material handling equipment field. Write, giving references, experience and availability. FLOW, Box 10153.

GOLDEN OPPORTUNITY FOR MATERIAL HANDLING SALESMEN

Choice territories still available. Company manufactures complete stand-

ardized line. We want men with initiative and ability—willing to concentrate on fewer lines, with greater sales appeal. Stop "free lancing" and specialize in the industry which is revolutionizing American manufacturing methods. Give full information—experience, education, photo if available, and minimum drawing account if necessary. MARKET FORGE COMPANY, Material Handling Division, 35 GARVEY STREET, EVERETT 49, MASS.

EXPERIENCED PORTABLE CONVEYOR DESIGN ENGINEER

To handle all engineering in new Pre-Engineered Products Division of one of the oldest, established and outstanding conveyor manufacturers in the business. You will handle all development and design and occasional incidental engineering in connection with incoming orders. This is a "one-man department" for the present with a real opportunity to help build and grow with a new division. If you are experienced, can really produce, and have confidence in yourself, here is an unusual chance to make yourself valuable to one of the leaders in the field and to be rewarded accordingly. Send com-

plete data, including small photograph and present salary, in confidence to Norman Sullivan, The Alvey-Ferguson Company, Cincinnati 9, Ohio.

POSITION WANTED

Material Handling Specialist desires relocation. Possesses unusual background including top-level positions in sales, management, production and application engineering in material handling for over 20 years. Write c/o FLOW, Box 10253.

JOB HUNTING?

Here's a new FLOW service to aid those who hesitate to answer "blind" advertisements in our Help Wanted column. Rather than jeopardize your present job by having your letter fall into the hands of your own employer or some other unwanted firm, just send FLOW a list of the "taboo" firms along with your letter. If the advertiser is on your list your letter will be returned to you.



PRODUCTION LOSSES

you can feel—but can't SEE !

METAL PRODUCTS

WAREHOUSES

MEAT & FOOD PROCESSING

CHEMICALS

TEXTILES

PAPER

ETC.

The three elements that affect all manufacturing processes are

TEMPERATURE—HUMIDITY—TIME

Daily observation will prove that many of the losses which escape casual attention—rarely seen, but surely felt—are due to obsolete or poorly designed doors.

Prest-O-Matic Units come complete with doors, frames, motor-operators and ALL the hardware in place.

NO ALTERATIONS
NO FITTING

Electrically operated automatic doors are important time-savers in handling materials and shipments; extremely valuable in "weather-control".

Ask how Prest-O-Matic complete Door Units can help you!

CLARK DOOR COMPANY

514 Hunterdon Street,

NEWARK 8, N. J.

Circle No. 37 on Reader Service Card for more information

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DO YOU KNOW THE BAKER

gas-O-matic
TRADE MARK

40·40·50 Story?



Independent testing laboratories and large industrial users have proven that the Baker Gas-O-Matic is the *most economical* gas-powered fork truck to own and operate.

40% LESS FUEL

Baker Gas-O-Matic averages about $\frac{1}{2}$ gal. of gas per hour of operation — less than 60% as much as ordinary gas trucks. Here are some of the reasons

- High efficiency of gas-power, electric drive system
- Gas engine always operates at efficient RPM
- Efficiency of Baker-built industrial truck drive motor
- Efficiency of Baker worm drive power axle.

40% LOWER MAINTENANCE

Baker Gas-O-Matic has no clutch or gear shift — most common offenders in gas-truck breakdowns. Special Gas-O-Matic variable voltage generator requires no electric controller — no resistance banks. Gas engine runs at lower speeds, reducing engine maintenance. Many other features contribute to lower repair costs and less time out of service.

50% LONGER LIFE

Baker Gas-O-Matic uses standard electric truck parts in all but gas engine and generator — with proven record of 20-year life span. Government permits tax write off of electric trucks over twice as many years as for gas trucks. With one engine replacement Gas-O-Matic trucks should last 10 years or more.

Get the complete story from your Baker representative, or write for Bulletin 1344



THE BAKER-RAULANG COMPANY
1219 WEST 80th STREET • CLEVELAND 2, OHIO

The Baker-Lull Corporation, Subsidiary, Minneapolis, Minnesota
Material Handling and Construction Equipment

Circle No. 14 on Reader Service Card for more information.

Baker

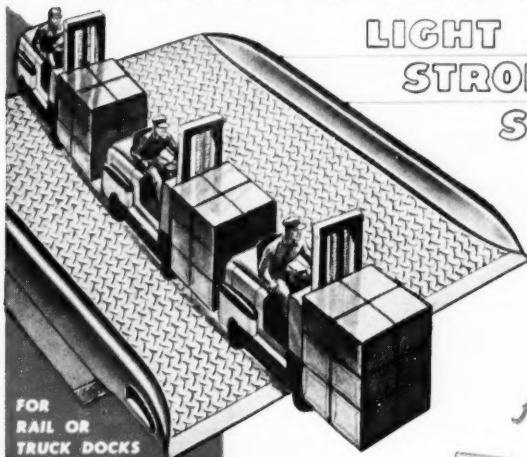
industrial trucks

LOADING OPERATIONS

CHOKED..

Are overtaxed shipping and receiving facilities jamming up the loading dock . . . putting a stranglehold on output? Are efforts to increase production and profits hampered by lack of additional loading capacity? There is one *proved* way to multiply loading capacity . . . eliminate bottlenecks . . . prevent costly tie-ups—and all without major capital expenditure! Do as many thousands of leading companies have done. Equip your docks with magnesium-light, magnesium-strong Magliner Dock-Boards! With these low-cost, high output units in operation, you can speed material flow . . . establish faster, easier-access transit between plant and freight carriers . . . and cut loading time to a new low!

Magliner Dock Boards present no expensive installation problem! No fixed inflexibility! Magliners are permanent . . . yet you can move them about, *whenever and wherever you wish!* Fabricated of the world's lightest structural metal, Magliner Dock Boards are easily handled by one man. Of bridge design construction they are capacity rated to handle the heaviest of loads and equipment. Available in 34 standard models, as well as custom engineered to exact requirements. Get the benefits of smoother, faster lower-cost loading! Get the facts on Magliner!



FOR
RAIL OR
TRUCK DOCKS

**LIGHT
STRONG
SAFE**

Mag Liner
MAGNESIUM
DOCK BOARDS

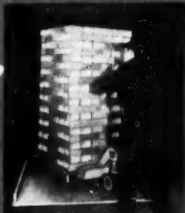
Another great new First from Magliner!
"TIRE SAVER" SIDE CURBS



COMPARE THE DIFFERENCE!
Ordinary side curbs permit wheel rims to bear against and wear into the curb, thus creating jagged edges which soon result in costly, needless tire damage. In addition, such forceful contact weakens the side curb and shortens service life. Design of the new Magliner "Tire-Saver" side curb specifically prevents metal-to-metal contact . . . wheel-to-curb collision—eliminating the single biggest cause of tire and dock board damage!

**EQUIPMENT
UNDERCLEARANCE**
Low side curbs, proper board length, precise crowning. All combine to insure absolute underclearance for low handling equipment.

LONG SPANS
Ample strength, rigid structure, safe, easy crossover. For all span requirements—short or long!



WRITE TODAY for Information Bulletin DB-204R

MAGLINE, INC. • P.O. BOX 346 • PINCONNING, MICH.

Circle No. 84 on Reader Service Card for more information



■ Composite photo showing a drum of chemicals being put through a variety of handling motions by the Baker "Octopus."

This BAKER TRUCK handles any shape load ... *and stacks it in any position!*

■ You name the load—the Baker "Octopus" illustrated will handle it, whether it's a drum, a roll of newsprint, a packing case, a piece of machinery, a bale of cotton or a pallet load of cartons. Moreover, it will pick it up, transport it, raise or lower it, shift it to left or right, revolve it, up-end it, or stack it in any position. In fact, it will handle it with no more physical effort than is needed to operate the simple hydraulic controls.

The "Octopus" consists of a standard Baker Fork Truck equipped with a variety of Baker attachments—360° revolving head, 4-purpose carriage, up-ender, drum clamp, etc.—which may be applied individually or in combinations. While one truck may never be called on to perform all these functions, the "Octopus" demonstrates the range of utility of Baker fork trucks and attachments.

write for

6-page special report on the application of Baker attachments to various loads.

Baker

industrial trucks

THE BAKER-RAULANG COMPANY
1219 WEST 80th STREET • CLEVELAND 2, OHIO

BAKER-LULL Corporation, Subsidiary, Minneapolis, Minn.
Material Handling and Construction Equipment.